

# Chemical Week

June 19, 1954

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**Anti Day and Pro Anderson:** they clashed in the nation's hottest fluoridation fracas . . . . p. 26

**Equation for the future:** nuclear energy + portable polymerizer= better plastics . . . . p. 50

**Target:** output of enzyme to cope with paper, textile, food industry problems . . . . p. 66

**Broad-spectrum color range boosts paint sales for enterprising independents** . . . . p. 80

**How does your sales outlook stack up against this months-ahead consensus?** . . . . p. 101

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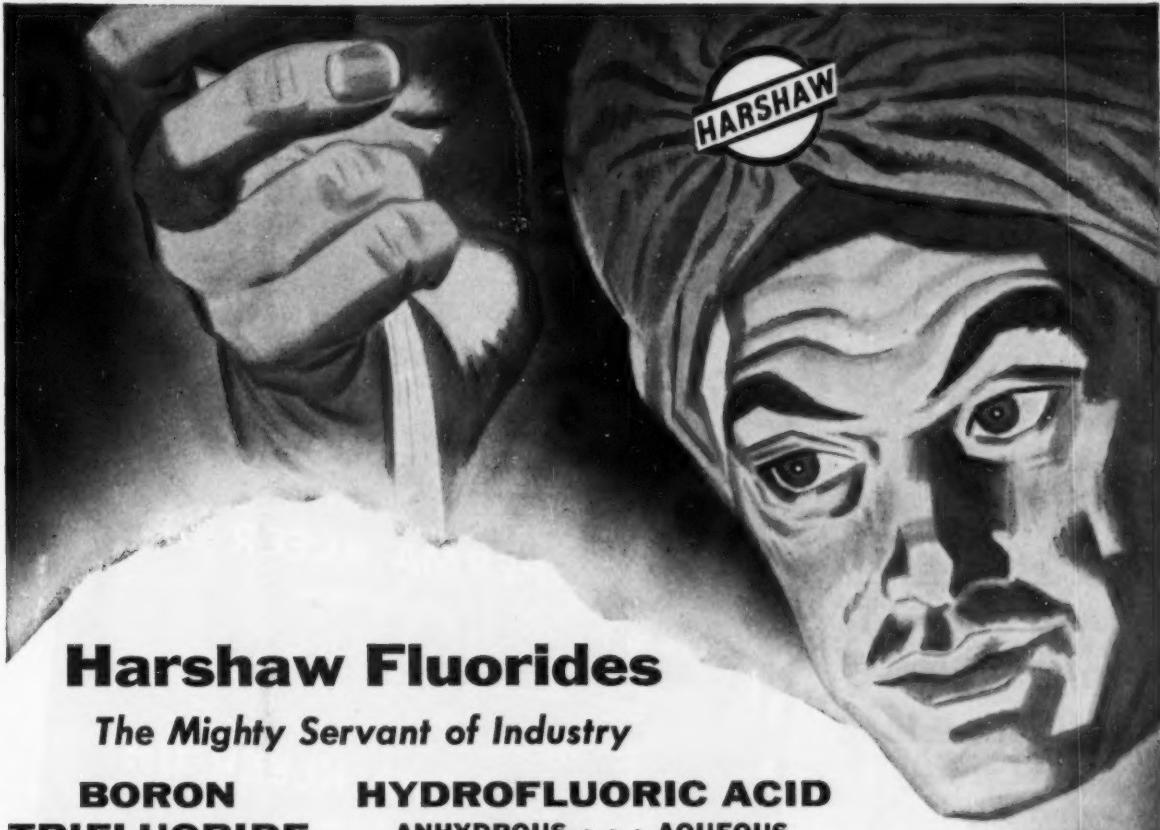
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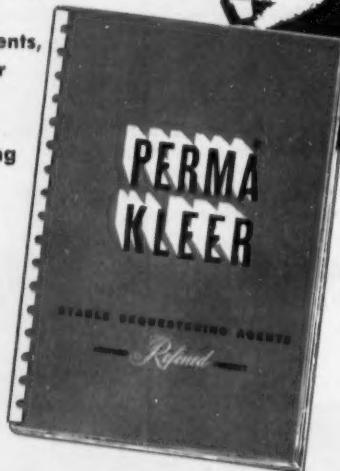
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# Chemical Week

Volume 74

June 19, 1954

Number 25

OPINION .....	6	RESEARCH .....	66
NEWSLETTER .....	11	SPECIALTIES .....	80
BUSINESS & INDUSTRY .....	15	MARKETS .....	91
PRODUCTION .....	50	DISTRIBUTION .....	101



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June 19, 1954 • Chemical Week

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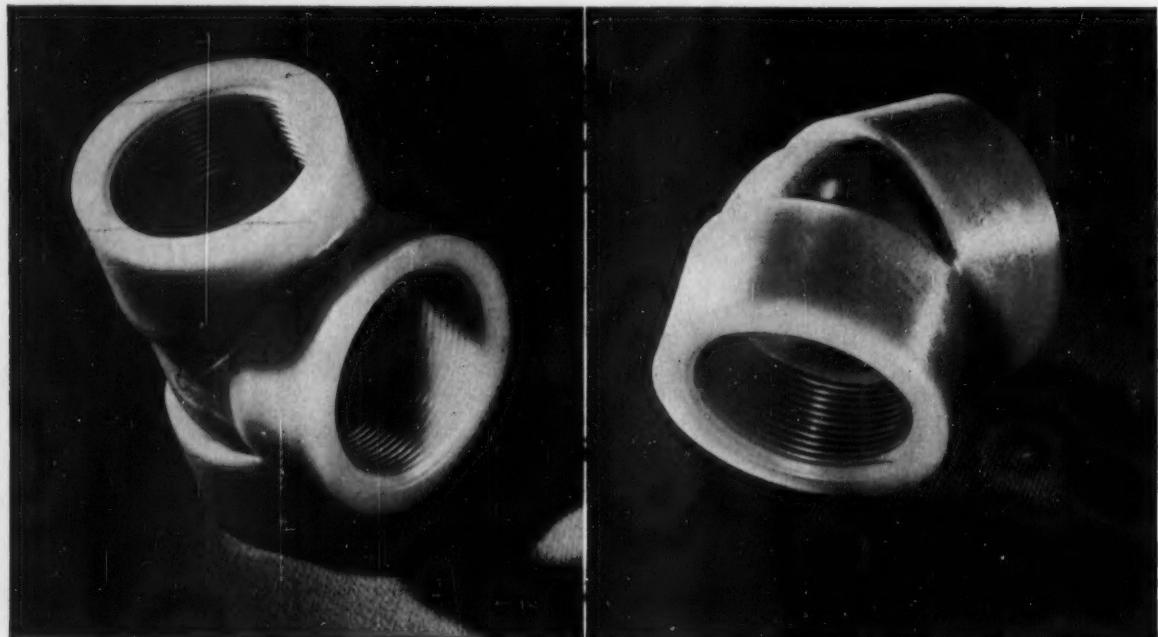


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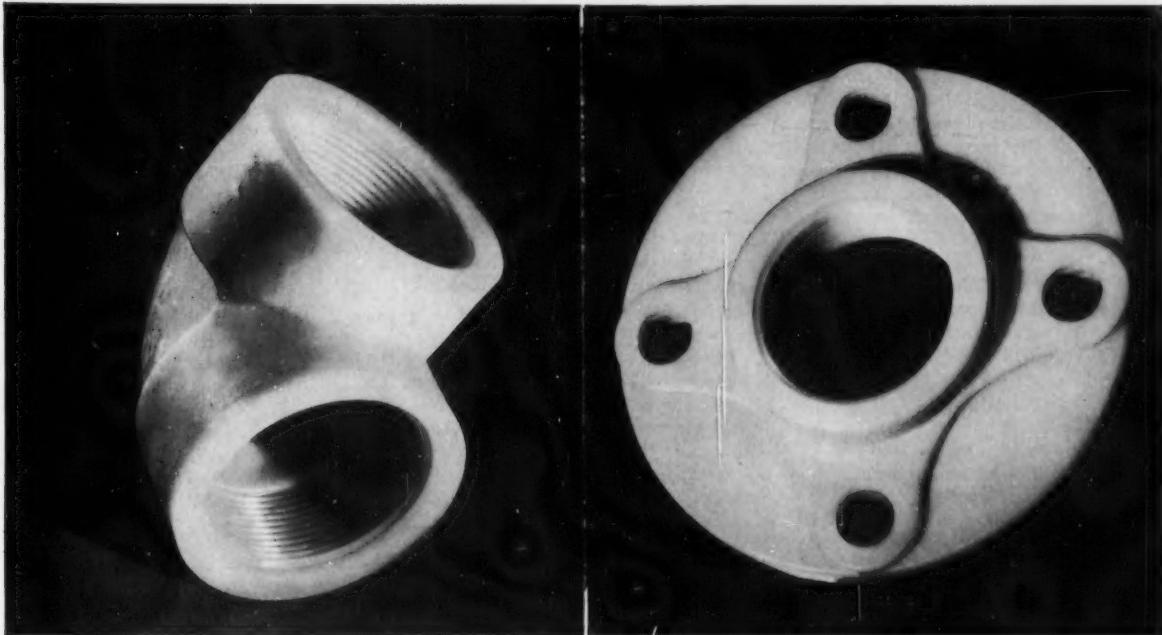
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# OPINION

## Conformity No Criterion

It is neither within the purview nor is it the intention of this magazine to pass judgment, one way or another, on J. Robert Oppenheimer, the atomic scientist who has been denied security clearness by the Atomic Energy Commission. The members of the AEC's Personnel Security Board—and they are all thoughtful, intelligent men of unquestioned integrity—have access to all the facts and allegations on which their decision was based—some 3,000 pages of data. We don't. But some of the reasoning (which was made public) that underpins the decision gives us pause.

It is, in our opinion, little short of ridiculous to commend on the one hand and condemn on the other. That's what the board did. It praised Oppenheimer's loyalty to the nation; it agreed that he had, throughout the years, been discreet in handling secret information; it exonerated him of the charge that he had striven to induce other scientists not to work on the H-bomb project; it even asserted that he had not declined to cooperate on the project himself. It damned him, however, for showing a lack of enthusiasm for the "crash" program back in 1950.

**Matter of Definition:** The board was faced, we suspect, with a well-nigh impossible situation: it had to come to a black-or-white conclusion that would be in harmony with a lot of rather gray regulations. Once upon a time, loyalty was the criterion by which a man was judged; under the new rules, security is the standard. Past associations, ideas, personal habits and activities are important criteria; actual loyalty, demonstrable though it may be, is but one aspect.

Some such standards, we are free to admit, are certainly necessary. A loyal man might, unwittingly, be a security risk. He might be a drunkard, he might be a fool, he might be easily influenced by others. The real problem, therefore, stems from the nature of the security standard; they should not be unrealistic or loosely written; they should be precise in their delineation. But, even if that ideal were attainable, to administer them wisely and fairly would be a Solomon's task.

The current case points up the difficulties. What does this "lack of enthusiasm" mean? How is it gauged and by whom? Must we assume that

any man who is called in to advise his government, even though he be termed "loyal and discreet," does so at his own peril if he harbors views different from those of the majority? Is dissent to be equated with disloyalty? Should free thought—or an honest expression of opinion—be forbidden or feared?

And, perhaps of greater consequence is this question: Is it not dangerous—and a far cry from justice—for any man to be "convicted" by any secret panel? With due regard for the limitations that security imposes, with respect for the wisdom of the panel members, such a procedure—involving a sentence of guilt imposed by the release of a statement to the newspapers—is an ominous deviation from the principles of jurisprudence.

We may, if we choose, simply disregard Oppenheimer as an individual and assume that one scientist more or less won't make any difference to our defense program. But this is not just a question of one man and his relationship to the state; it's a question, rather, of everyone in relation to the state.

**Perilous Miasma:** Our nation is choking in a miasma of suspicion, distrust and demagoguery. There's an anti-intellectual fever raging that is endangering scientific progress. It is becoming increasingly popular, particularly among students and younger men, to "play it safe": do nothing, write nothing, say nothing on which someone might some years hence disagree with you. Honest controversy no longer enjoys the respectability it once did. In such an atmosphere, the individual may assure himself of personal serenity by being a thoughtless zombie; but the nation suffers.

One immediate, and most easily apprehended effect of the present situation, may well be a flight from government service and a consequent deterioration of our defense development. Says Howard A. Meyerhoff, executive director of the Scientific Manpower Commission: "I don't believe this will discourage potential young scientists from going into science, but it will discourage scientists from going into government work—particularly into more responsible advisory positions." With that many will agree.

**Burden on Businessmen:** But scien-

tists, important as they are, aren't the only ones affected. It is a commendable aim of the Eisenhower Administration to bring capable businessmen into government. The treatment accorded some cabinet members—a sort of "press release" conviction by accusation—would by now have driven lesser men back into the comparatively peaceful sanctuary of private business. What has happened to them, and what is happening, will without a doubt deter other competent men from taking government posts.

Our best hope is that our present intimacy with fear and distrust is but a fever that will pass, and that our government will retain its magnetic attraction for top-flight scientists and businessmen. Many of them want to work for the public weal—but not under ill-conceived and unfair handicaps.

More importantly, we hope that our nation may continue to hold aloft a standard to which, as George Washington put it, the wise and honest can repair. But wise and honest men must often differ; and conformity must not be made a measure of trustworthiness.

**W. Alec Jordan,**  
Editor

### Fee, Fie, Fo, Fum

**To THE EDITOR:** . . . They hate you in Detroit . . . as you may suspect from the enclosed copy of *The Detroiter*, which is published by the Detroit Board of Commerce . . .

You have tramped on civic pride, dared to mention the evil word "Seaway" . . .

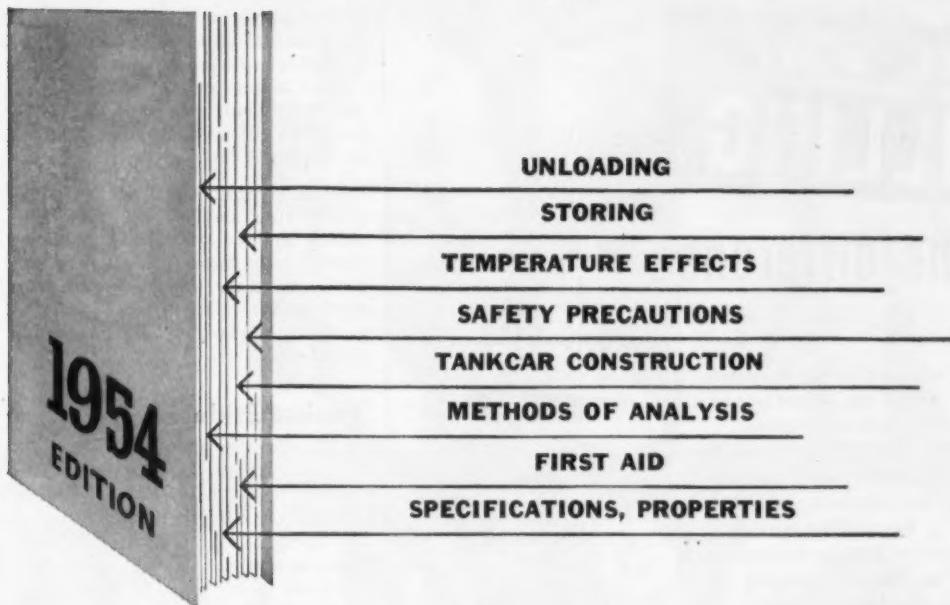
**L. T. MARSHALL**  
Toledo, O.

**The quote:** "CW is published by McGraw-Hill, a brilliant group of thinking editors. In the May 22 issue appears an article 'The Ocean Comes to Toledo.' A survey of points-of-call on the Great Lakes is made—but not Detroit.

"We suggest that the editor of CW stick to chemistry, or when he gets out of his field, he consult someone who knows what he is talking about. For instance, anybody who can read news-

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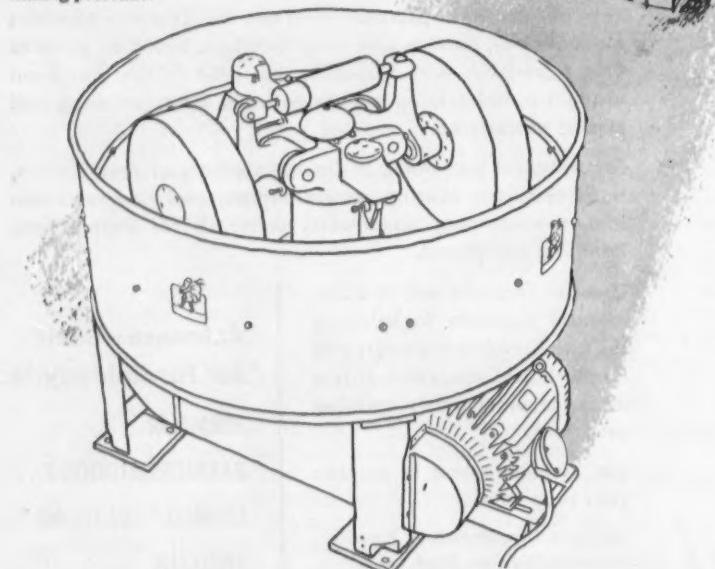
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"Is Canada building a deep channel so the world can come to Toledo? So thinks the brilliant editor of CW—in 36-point type."

*Our suggestion: that The Detroiter's editor read beyond the headline—calmly and carefully. The financing plans for the Seaway are plainly outlined, albeit he will encounter that apparently irksome phrase: "Toledo—most westerly port of call for sea-going ships." —ED.*

#### Yankee Pride

TO THE EDITOR: Your Boston chemical industry article (May 22) was a refreshing change from the usual funeral orations on industrial New England. Too many people think that the over-publicized expansion in the South and West are taking place at the expense of the Northeast. What they don't seem to realize is that the whole economy of the country is expanding and that we are certainly doing better than holding our own . . . Although it's probably cheaper to get started in some other parts of the country, once started, New England has undeniable advantages. It means a lot to the modern industrialist to know that he has at hand the best-trained labor supply in the world, is near the best technical research facilities in the world, and isn't very far away from the biggest market in the world. Last, but not least, think what it means just to know that he will always have plenty of water!

GEORGE GAVIN  
Everett, Mass.

#### DATES AHEAD

American Institute of Chemical Engineers, special meeting on nuclear energy, Univ. of Michigan, Ann Arbor, June 20-25.

Chemical Institute of Canada, annual conference and exhibition, Royal York hotel, Toronto, June 21-23.

American Drug Manufacturers Assn., annual meeting, Lake Placid Club, Lake Placid, N.Y., June 28-30.

Plant Maintenance Show, Pan Pacific Auditorium, Los Angeles, July 13-15.

American Pharmaceutical Assn., annual meeting, Statler hotel, Boston, Aug. 22-27.

World Congress on Surface Active Agents, Sorbonne, Paris, France, Aug. 30-Sept. 3.

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## NEWSLETTER

What the House takes away, the Senate restores. This common pattern was repeated last week on appropriations particularly meaningful to the chemical process industries:

- The Dept. of Commerce asked for \$11 million to operate the Patent Office, although Patent Commissioner Watson testified in House Hearings that he thought it too little—as a result the backlog would increase and lengthen the lag between patent application and issuance. The House nevertheless voted \$11 million, but a Senate subcommittee has now upped the budget to \$12 million.
- The Senate boosted by \$500,000 the House's appropriation for the National Bureau of Standards—but the new figure is still \$1½ million below the President's request.
- Business & Defense Services Administration also got a \$750,000 windfall from the Senate, although its budget is still \$480,000 less than it asked for.

In another arena, look for two tussles now shaping up in the home laundering market:

- The ever-increasing number of automatic washing machines represents a fast-growing household market for low-sudsing detergents that until now has belonged largely to Monsanto's "all." Now the "Big Three" soapers—Procter & Gamble, Colgate, and Lever—want to cut in for a share, are quietly readying products for national distribution. "Dash" will carry P&G's colors (CW Newsletter, May 22), "Vim" is Lever's entry, and Colgate will back "Ad." All three are being test-marketed in selected areas.
- The second contest is developing in household bleaches, will flare into the open this week. Colgate will be the first of the "Big Three" to come out with a dry chlorine bleach. Unlike "Purex," which is a calcium hypochlorite product, Colgate's "Pruf" is a spray-dried powder based on Wyandotte's dichlorodimethylhydantoin, also has the "sanitary" chlorine odor that housewives expect. It will appear on grocery shelves in a detergent-style box.

First of a new series of Bolivian tin ore shipments will arrive at Texas City next Wednesday. In short order Congress authorized continued operation of the government-owned smelter there (CW Newsletter, June 12), contracts were drawn up with the Bolivian government, and the first 4,000 tons of ore was sped on its way.

Smelter operation—on a somewhat smaller scale than heretofore—will start about July 15.

Some legal kinks corrugated the path of last week's progress:

- Louisiana got busy, rewrote its gas gathering tax law to eliminate features that the U. S. Supreme Court found illegal in a similar Texas statute. The new version passed the state house, has been approved by a state Senate committee. Happy feature: no tax hike.
- Jess Ritchie won indefinite postponement in Federal Trade Commission proceedings, begun in March, against advertising claims he has made for his battery additive, AD-X2. His firm, Pioneers, Inc., moved for a delay, was granted one on the basis of certain technicalities. But

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## NEWSLETTER

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Ritchie isn't likely to get off the hook, think Washington observers, since FTC carefully and deliberately decided last November—after the National Academy of Sciences issued its special report—to study additive advertising. But this procedural maneuver is an effective stalling measure; Ritchie has likely won a delay extending beyond the rest of the summer.

• Industry representatives won a point in Kentucky. They argued at a State Board of Agriculture hearing that pest control operators should not be required—any more than carpenters or plumbers—to post performance bonds. Last week Agriculture Commissioner Ben Adams said it won't be necessary.

• A Louisiana House committee approved an \$897,465.72 appropriation to pay Jefferson Lake Sulphur for a judgment obtained against the state six years ago. Back in 1931 Jefferson Island Salt trespassed on land leased by the state to Jefferson Lake Sulphur. The state—owner of the land—filed suit, won, got the money, but refused year after year to give it to the sulfur company. It still has to pass the House.

A new firm, Arizona Gas and Chemical Co., will undertake a \$3-million development of nitrogen and helium wells in northern Arizona. The nitrogen will be converted into ammonia and the helium sold to the government. The company's plans were expedited by a clarification of the government's rulings on helium control.

Arizona Gas and Chemical has 30,000 acres near Macie No. 1, a well drilled and capped five years ago, that has a reported capacity of 80 million cu. ft./day of gas containing 89% nitrogen and 7.9% helium.

Look for evaluation tests soon, by the government's Akron rubber laboratory, of three new synthetic rubbers developed at the University of Illinois.

One is polymerized with the aid of a sodium catalyst (like the original German Buna), and another employs benzalacetophenone in place of styrene. Both provide low heat build-up, a vital characteristic for heavy-duty truck and airplane tires.

A third—no details given—is pinpointed for duty at the other end of the thermometer: it doesn't get brittle at temperatures as low as -50 F.

And speaking of rubber, the government's disposal commission this week began negotiating with the high bidders for segments of the synthetic rubber complex. All 36 companies submitting bids (CW, June 12, p. 13) have passed the first hurdle: financial eligibility. First talks will be largely exploratory, not scheduled in any particular pattern. For still to be decided by the commission is whether to work on a geographic basis—e.g., all Houston plants first—or on a product basis—e.g., all butadiene plants first.

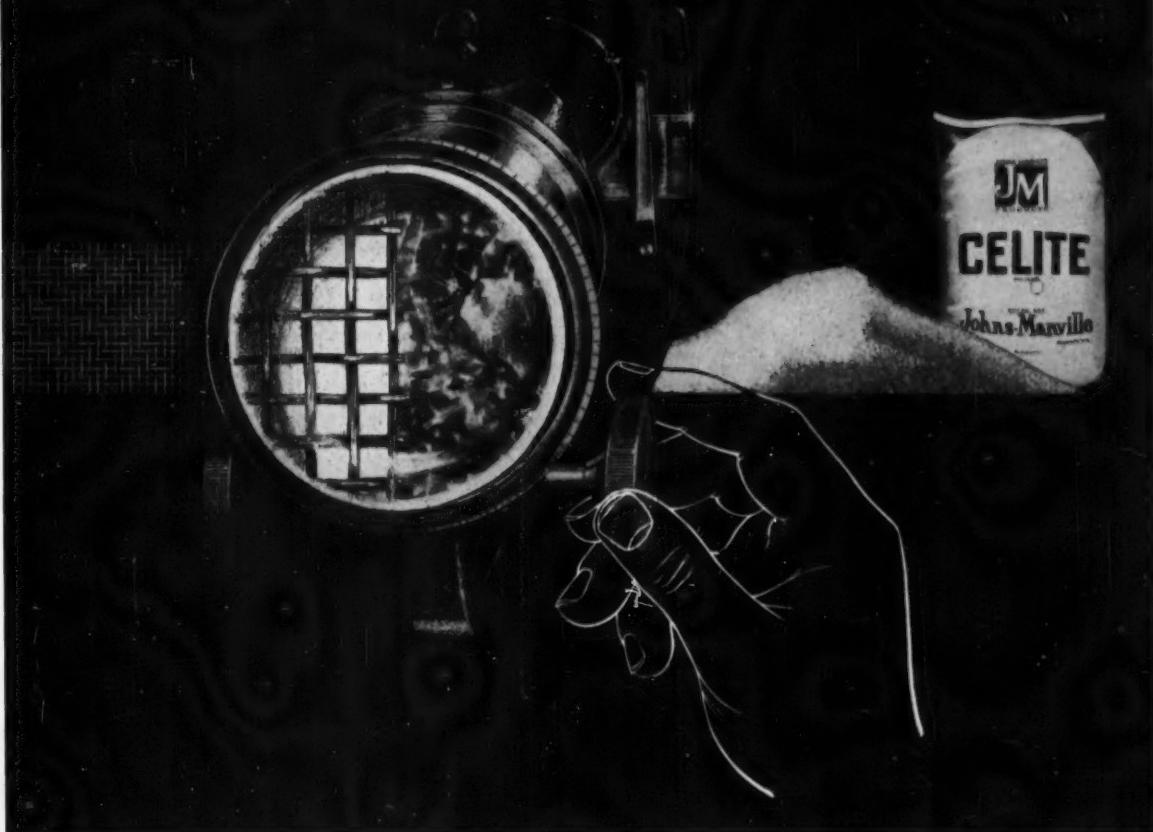
The opposition you can run into when you want to build a plant. Koppers plans a wood-preserving plant near Salem, Va., but local residents fear it may be a nuisance. Company officials attended a community meeting, brought along photographs of and data about Koppers' other 33 plants, invited a committee to inspect any of the 33, cited construction of expensive residences adjacent to operating plants to allay unjustified fears.

This week a citizen's committee is visiting Koppers' Richmond plant. If it is still unsatisfied, court action threatens to stop erection of the facilities, scheduled to begin this summer.

... The Editors

HUNDREDS OF TIMES FINER

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\*Celite is Johns-Manville's registered Trade Mark for its diatomaceous silica products.

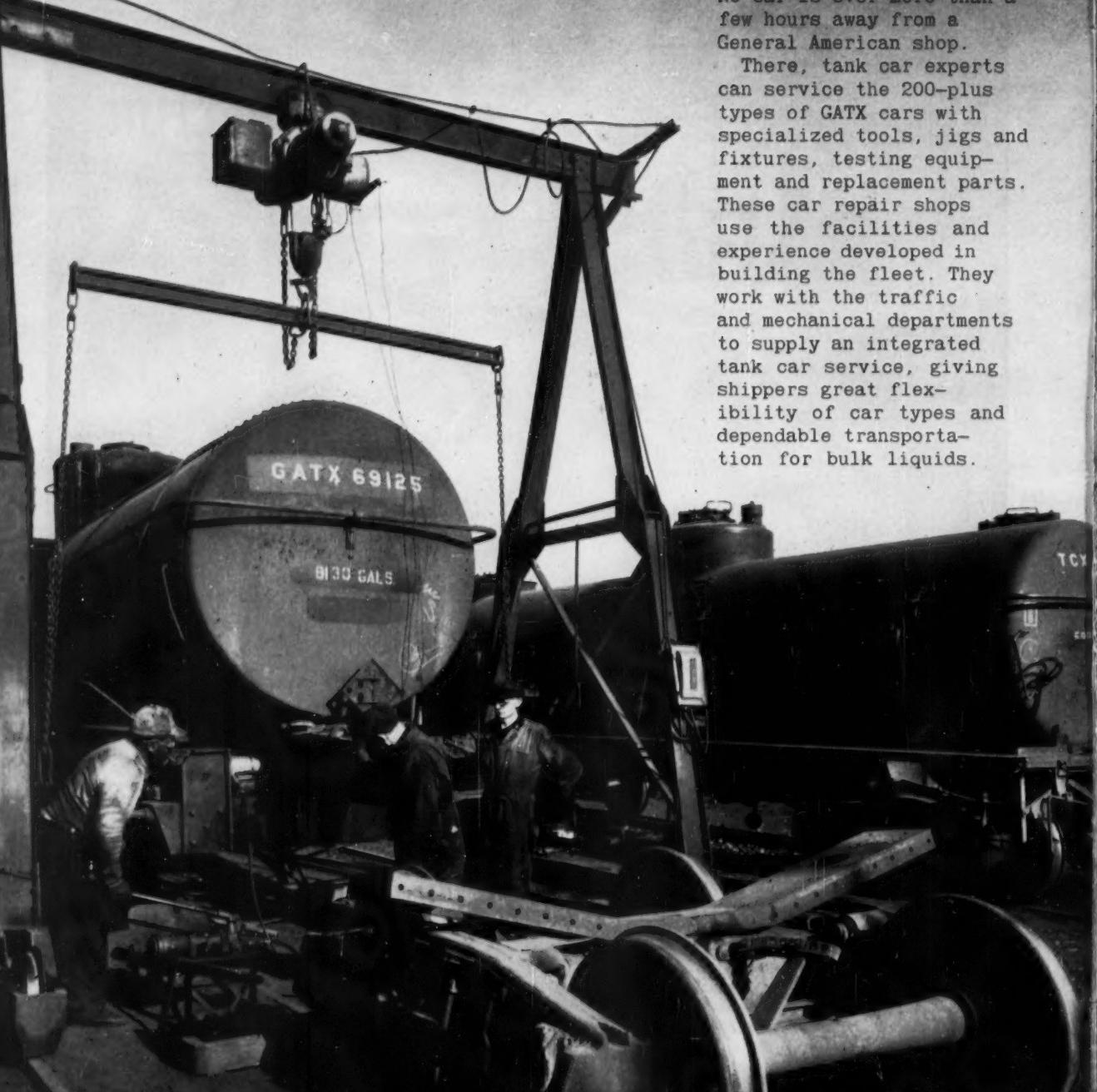


## Johns-Manville **CEЛИTE** FILTER AIDS

# professional service for GATX tank cars

The 47,000 tank cars of the GATX fleet are given regular maintenance at more than 30 General American car repair shops located throughout the U.S.A. No car is ever more than a few hours away from a General American shop.

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## BUSINESS &amp; INDUSTRY . . .

**Traders' Triumph**

Action in the high vs low tariff struggle speeded up to a hurtling pace as Congress moved toward a decision on this controversy; and this week, with Eisenhower standing firmly on his compromise with Republican leaders in Congress (CW, June 5, p. 11), it appeared that this decision would amount to a qualified triumph for those favoring more world trade.

A one-year extension of the Reciprocal Trade Act—with no protectionist strings attached—now is practically certain, having passed the House by a vote of 282-53. This will permit the Administration to start work this year on two tariff-lowering programs viewed darkly by chemical companies and by other industries that have to worry about foreign competition:

- There will likely be multilateral tariff negotiations aimed at giving Japan freer access to markets in the U.S. and in other non-Communist countries.

- The Administration also will press for negotiations to strengthen the powers and the organizational structure of the General Agreement on Tariffs and Trade (GATT)—under which all postwar tariff concessions and trade agreements have been made.

**Japanese Economy Prop:** Tariff negotiations with Japan—which would be for the purpose of helping that nation become self-supporting—could lead to some substantial U.S. tariff concessions, not only for Japanese products but also for exports from other countries. In direct bilateral agreements with Japan, the Administration would have authority to cut any U.S. tariff rates on imports from Japan 50% below 1945 levels.

In addition, present plans call for multilateral negotiations among the U.S., Japan, and as many other free-world nations as may be willing to take part. The U.S. would try to offer trading concessions to those other countries if they will open their markets to Japanese goods; but inasmuch as the U.S. has already used up most of its current tariff-cutting authorization relating to other nations, it wouldn't have a great deal of bargaining leverage here.



**PROTECTIONIST STRACKBEIN:** In White House call, he tells industry woes.

It's still not certain that tariff talks with Japan actually will come off. The major industrial nations of Europe—remembering Japan's prewar trading tactics—are even more leery than the U.S. of letting Japan back into their markets.

**Stage-Setting Move:** Strengthening the GATT would have no immediate effect on U.S. tariff levels. But if it's done and the GATT is then ratified by Congress—which so far has refused to sanction the agreement—then the stage would be set for tariff negotiations in the future.

The one-year extension, which would make these moves possible, emerged from a hot political row. At one point, there was a question whether any tariff legislation could be passed. Even the President's moderate offer to settle for a simple one-year extension was vigorously opposed by protectionists in and out of Congress.

One spokesman for U.S. chemical companies, Chairman O. R. Strackbein of the National Committee of Industry, Agriculture & Labor on Export-Import Policy, led a group of high-tariff proponents on a visit to the White House last week. There they expounded Strackbein's thesis that "Advocating an extension of the act as it now stands, even for one

year, overlooks the serious injury already being inflicted on many of our industries."

The deadlock between pro and con factions was upset when Rep. Dan Reed, high-tariff chairman of the powerful Ways & Means Committee, agreed to work for passage of the extender bill—even without a promise that the Administration would refrain from any tariff cutting this year—for the sake of GOP unity before this fall's elections. Democrats, while criticizing Eisenhower for not putting up a fight for all the rest of his "trade, not aid" program, are going to support the one-year extension.

**How Much Policing**

Manufacturers next year will encounter Food & Drug Administration inspectors even less often than this year, it appeared this week. FDA's staff lost three dozen professional persons following last year's \$450,000 budget whack, and now Washington is talking about further restrictions on this agency's operations.

Latest moves that might lead to new metes and bounds on FDA activities:

- The House of Representatives last week okayed the \$152,800 FDA budget cut that had been recommended by the appropriations committee (CW Newsletter, June 12).

- FDA and the Federal Trade Commission, whose policing powers in the drug field sometimes have overlapped, have signed a working agreement to avoid unnecessary duplication, promote better liaison.

- Health-Education-Welfare Secretary Oveta Culp Hobby revealed that she plans to set up a survey committee to study the degree of enforcement that FDA should carry out.

In addition, a committee appointed last year by Mrs. Hobby and Agriculture Secretary Ezra Taft Benson is about to make its recommendations of the respective responsibilities of USDA and FDA in grain inspection.

The FDA budget bill now goes to the Senate, where it's fairly sure that a restoration of funds will be requested. But whether any such restoration could survive Senate-House conference is still doubtful.



COLUMBIA 1954: More chemists, fewer chemical engineers.

## Insoluble Problem?

It's no news to harassed personnel directors that there's a shortage of technical manpower this year. Chemical companies from coast-to-coast are in the same predicament; there just aren't enough graduates to go around. But what makes their task even more discouraging is the attitude emanating from many colleges. Pointing proudly to the increased numbers of chemical, chemical engineering graduates (at all levels) this year, college officials don't always stop to realize that although their quotas are inching upward slowly, the chemical industry's expanding at a still faster rate. But the situation's pointed up clearly in a report just issued by the Bureau of Labor Statistics. Estimated requirements for chemical engineers alone in 1953 was one-third greater than in 1952—and the jump's nearly comparable this year. However, chemical engineers graduating last year (with a bachelor's degree) slipped 21.5% from 1952—are barely holding their own this June. And the pattern's very similar in regard to chemists.

Salaries this year, reflecting the increasing demand for degree holders in chemistry, are also on the upswing again. Average starting salary for chemists among the June crop of B.S. winners ranges from \$350-\$375—for engineers, it's close to \$10/month higher.

Virtually no college, in a recent CW survey, reports any engineers "unplaced" before commencement except,

in the most unusual circumstances. Fewer graduates are "going immediately into the Armed Services" but the added reserves haven't made an appreciable difference in the overall picture.

A few companies, however, say they've found a partial answer to the perennial manpower shortage problem. "It's far from ideal, but it accomplishes our main objective . . . getting enough men to keep our expansion program going," states one Midwest vice-president. "We're depending more and more on cooperative plans with local universities to fill the gaps in engineering personnel. Students alternate periods of classroom work with work in the plant; eventually after a five and a half year span they come to us full-time . . . meanwhile we get at least a little interim aid."

Others (including Union Carbide, Monsanto and Dow) have turned to Army and Navy recruitment centers to help fill their technical manpower requirements. Typical is the agency at the Aberdeen Proving Ground in Maryland. Operated unofficially during off-duty hours, the placement agency this year invited 37 companies to interview men for jobs; personnel men responding found the prospects so rich that 50% of the interviewees were offered 10 or more jobs apiece. Salaries offered averaged \$385-\$400/month for a Bachelor of Science degree (the difference apparently is be-

ing paid for experience acquired while in the Army). A Master's degree is bringing \$25 more.

To screen out what might have been a flood of personnel directors, Aberdeen's placement manager, Sgt. Bob Rea circulates questionnaires carrying the names of interested companies to both enlisted men and officers. The men were asked to check off those companies they were most interested in interviewing for employment. Companies receiving 10 or more checks were thereupon invited to send representatives.

Such a selected system, obviously, doesn't answer the problem of filling its technical manpower requirements in the small, relatively unknown company. And they're the ones that are being hardest hit by the current manpower shortage.

And what will happen if an answer to the problem isn't found soon is equally obvious. Many companies, with major expansion plans already under way may be forced to cut back until their manpower needs can be satisfied.

## Dogged Optimism

Latest signs on the Washington ouija board point to an early increase in business activity, says Arthur Burns, chairman of the President's three-man Council of Economic Advisors. Most encouraging sign: a special survey of expenditures for expansion recently conducted by the CEA.

In direct repudiation of the Commerce Dept. and Security & Exchange Commission indices (which predict a 4½% drop this year from 1953 record spending programs), CEA surveys indicate "plant and equipment outlays this year fully as high as 1953."

As far as the chemical industry is concerned, the picture's optimistic but not "rosy." Expenditures on new plant and equipment for the January-March quarter this year came to \$337 million, is estimated at \$351 million for the April-June quarter, and \$322 for the July-September quarter.

That means, it would take a \$549-million last quarter to approach 1953's record \$1,559-million total.

However, chemical investments are higher than those of nearly\* all other manufacturing industries. For all manufacturing companies, capital outlays in the first nine months of each year were \$8.9 billion in 1953 and an estimated \$8.3 billion this year.

But Burns isn't discouraged. Says he: "Everything points to an early upturn in economic activity."

\* Except products of petroleum and coal, and transportation equipment manufacture.

## Welcome Esprit

Next month's Treasury Dept. directive on alcohol regulations may serve as an example of rare unanimity—it's heartily endorsed both by industry and a government agency. Enthusiastic cosponsors: the Treasury's Alcohol and Tobacco Tax Div. and representatives of the nation's distillers. Their mutual aim is to scrap much of the tangle of alcohol tax laws and regulations currently thwarting efficient production.

But the anticipated directive—when issued—will be only phase one of a three-pronged attack to wipe out existing archaisms. ATTD's over-all campaign plan includes:

- Pushing for immediate administrative changes in some existing regulations.
- Striving to modify and simplify certain bills already under consideration by Congress (and due to become law, if adopted, Jan. 1, '55).
- Planning to further revise tax laws to be presented to the new Congress next year.

**Auspicious Start:** The cordial ATTD-distiller alliance got off on friendly terms last September when Dwight Avis (division chief) invited industry men to sit down with his revision committee "to help streamline obsolete laws" (some of which dated from 1791). To make sure that all important segments of the alcohol industry were represented, six advisory committees were formed to study the problem—included representatives of industrial alcohol companies, registered distillers, fruit distillers, rectifiers (whiskey blenders), wholesalers and importers. Proof of the sagacity of the move: out of this teamwork more than 50 recommended changes have stemmed—changes that the Treasury Dept. will relay via its directive to Congress.

And while no one can predict for sure what effect the recommendations will have, informed guesses center on at least three possibilities, one or more of which will probably be adopted. Congress could (1) authorize use of meters instead of weigh tanks to measure alcohol output, (2) authorize use of sampling devices, or (3) liberalize the stringent regulation that permits warehouse loading and unloading only between dawn and dusk.

From the chemical industry's standpoint, authorization to use meters would evoke the loudest cheers. There's a solid reason—it would cut costs. (The largest weigh tanks cost



ATTD'S AVIS: Mutual profit from friendly cooperation.

as much as \$250,000, meters of the order of \$500.)

Whether this recommendation is accepted or not, however, depends on an experiment now being conducted at one of the country's largest distilleries—a test that seeks to prove (on a trial basis) that meters, properly used, can satisfy government requirements for data and at the same time pare both industry's and government's expenses.

In that experiment, the company is using a meter that's believed to overcome both obstacles that had stumped engineers previously. It's designed to compensate for temperature and to assure uniform proof—which is necessary because the tax is only on the alcohol content.

Another proposed change that could be of real import to the chemical industry: if distilling companies were allowed to set up chemical production units requiring industrial alcohol at the same plant where alcohol is distilled, duplication of some costs and transportation charges would be eliminated.

**Passing the Posies:** Both tax collectors and industry men, regardless of the outcome, are pleased with their seven-month cooperative effort. They're convinced that Congressional acceptance of their recommendations will mean a double saving, provide substantial cuts in industry's production costs, ATTD's manpower needs, and at the same time protect the government's chief interest—revenue.

Typifying the feeling of all mem-

bers of the joint revision committee is a comment by National Distiller's Robert Joyce. Says he: "The Treasury Dept.'s approach to this whole problem is more than welcomed by the alcohol industry. ATTD's willingness to accept our suggestions has been a revelation to all of us."

## Merger Mileposts

Possibly in a move to placate employers and curb their opposition to the merger of 31 unions into one big "Oil & Chemical Workers International Union," the wage policy committee of the largest of those present unions is offering a no-strike pledge during bargaining on its proposal for a 5% wage increase.

That request amounts to less than half of the 25¢/hour rise demanded by the Oil Workers International Union (CIO) two years ago, when a one-month strike was settled for a 15¢ pay boost. So in asking for an 11¢ wage hike this year, OWIU feels that it's being moderate, and that if the oil and petrochemical companies adopt the same attitude, "a new era of labor peace will be established."

This action, coming at the end of a four-day OWIU pow-wow in Cleveland, sets the pitch not only for coming wage negotiations but also for politicking within those 31 unions on the merger decision. So far, the unionification scheme has been ratified by the OWIU (which has nearly 50% of the membership of the proposed amalgamation) and by the king-pin local of the Central States Petroleum

## BUSINESS & INDUSTRY

Union at Sugar Creek, Mo. At the Shell Oil refinery in Norco, La., members of the Independent Oil Workers of Norco gave an indication of sentiment by re-electing as president a man who's strongly in favor of merger. Only voting against the merger was by the Independent Oil Workers Union of Oklahoma, representing 1,350 employees at the Ponca City refinery of Continental Oil.

### EXPANSION . . .

**Nitrogen:** Standard Oil Co., Cleveland, is studying the possibility of building a nitrogen plant in Ohio to produce fertilizers. Present surveys are aimed at charting the potential market possibilities, estimating the cost of plant construction at several different sites.

**Caprolactam:** Construction work on Allied Chemical's National Aniline Div. plant at Hopewell, Va., is progressing according to schedule, company officials say. Production of caprolactum at the \$28.5-million plant will start next month; production of adipic acid will begin in October. Next in line for operation: Allied's multiple-structure fibre plant, located in nearby Chesterfield County. Initial output of the nylon-type fibre is slated for late November.

**Polyethylene:** National Petro-Chemicals Corp. has started work on its new polyethylene facilities at Tuscola, Ill. Construction, being handled by the M. W. Kellogg Co., is due for completion sometime in the spring of 1955. Existing ethylene units are being modified to provide the grade of ethylene necessary to produce high-grade polyethylene; laboratories are being built to allow for polymer process control, product application research.

### COMPANIES . . .

Attapulgus Minerals & Chemical Corp. and Edgar Bros. Co. have received proxies representing more than 85% of the shares in each company—favoring merger of the two firms.

**H. K. Porter Co., Inc.**, Pittsburgh, has acquired Pioneer Rubber Mills, Inc., Pittsburg, Calif. According to Porter president, T. M. Evans, the new facility will become part of the Quaker Rubber Corp., one of H. K. Porter's nine divisions.

**Texas International Sulphur Co.** will file a registration statement within the

next few weeks covering an offering of additional common stock to finance a sulfur exploration and development program in the Isthmus of Tehuantepec, Mexico.

**Barrett Div., Allied Chemical & Dye Corp.**, has purchased two roofing concerns located in Texas and Arkansas—the Artex Roofing Co., San Antonio, and the Williams Roofing Co., Camden, Ark.

**Utah Chemical Co.** has received authorization from the Office of Defense Mobilization to build a \$19-million chemical plant in Sanpete County, Utah. According to company executives, the plant will convert natural gas into "products used in the production of fertilizer, explosives, and synthetic rubber." Negotiations are currently under way "with a major chemical company"—involve an offer of part ownership in return for operating the plant.

**The H. K. Ferguson Co.**, Cleveland, has received a \$735,000 contract to mothball the Diamond Magnesium

Corp. plant at Painesville, O., built by the government at a cost of \$16 million. According to Diamond Magnesium (a subsidiary of Diamond Alkali Co.), the operation will be completed sometime next February.

**Chemical Enterprises, Inc.**, New York, has acquired the assets of Gulf Liquid Fertilizer Co., Wharton, Tex., a distributor of anhydrous ammonia. The company will continue to operate with no changes in present management.

**Shareholders** of the Great Lakes Oil and Chemical Co. have approved an increase in authorized common stock of two million shares. Cause for the demand: contemplated expansion work of the company's subsidiary Great Lakes Chemical Corp.

**First Boston Corp.**, managing underwriter, has stated that the \$100-million issue of 3% debentures (due 1979) of the Aluminum Co. of America is oversubscribed, and its books have been closed to further subscription.



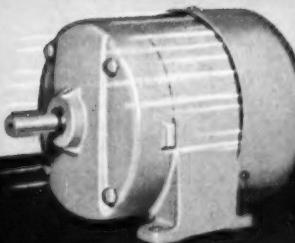
### St. Louis Blast: Sudden, Deadly

**REDUCED TO DEBRIS** was the St. Louis plant of Wilson-Keith Pharmaceutical Co. late last week after an explosion and fire that killed five persons and injured 34. Also destroyed: the house adjacent to the plant (right background). It

was the second plant blast in two weeks. In a fire the previous week at Carbide and Carbon's plant in Institute, W. Va. (CW Newsletter, June 12), there were no casualties, however, and the fire was put out in five hours.

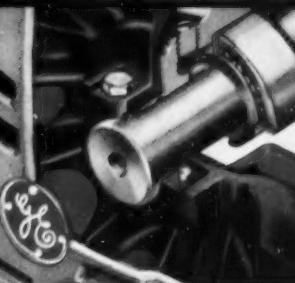
**TRI 55 CLAD THE LEADER IN MODERN MOTOR DESIGN**

JET COOLING



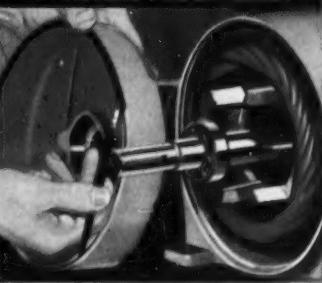
A BLANKET OF AIR spreads over entire surface, cooling and cleaning the new Tri/Clad '55'.

CORROSION-RESISTANT FAN

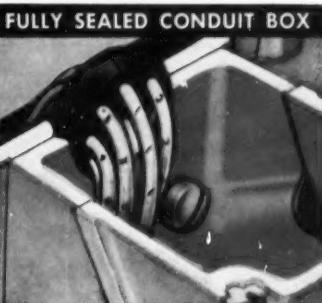


TEXTOLITE\* FAN resists acids, alkalis . . . is one of chemistry's vital contributions to the motor.

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SEALING COMPOUND applied on rabbet fits helps to seal out corrosives, moisture and dirt.



RUBBER GASKET waterproofs lead entry to stator of motor. Conduit box is also gasketed.



Now, the new chemical motor . . .

**G-E TRI 55 CLAD enclosed motor  
resists corrosion and moisture!**

General Electric's all-new Tri/Clad '55' enclosed motor meets the tough requirements of the chemical industry. Truly a chemical motor, the Tri/Clad '55' takes advantage of the industry's latest materials including silicone, polyester film, Textolite\* and neoprene.

Because it's better protected, this standard motor gives you longer motor life in tough jobs. Frame and end shields are rust-resistant cast iron. Carefully machined rabbet fits are tightly sealed. Rubber gasket protects lead entry to stator.

New insulation materials also add life to this motor. A silicone Dri-film\* coating on the stator sheds water—reduces insulation failure due to moisture. New polyester-film for slot and phase insulation is eight times stronger.

General Electric Tri/Clad '55' motors are available now in many ratings. The entire line, 1 to 30 hp a-c motors, available soon. For full details contact your nearby G-E Apparatus Sales Office or G-E Motor Supplier today. For bulletins on the complete line, write General Electric Company, Section 648-8, Schenectady 5, New York.

\*Reg. trade-mark of General Electric Co.

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**GENERAL**  **ELECTRIC**

**Q.** Could chemical science develop a substance offering more durable protection against moisture for fabrics, leather, masonry and many other materials?

**A. MOISTURE JUST ROLLS OFF THIS INVISIBLE "FILM"**

ANOTHER EXAMPLE OF



CHEMICAL PROGRESS



They're calling textile water-repellents made with G-E silicones "Super Silicones"—perhaps the greatest surface protection against damp and wet that chemistry has ever searched out. If you have seen rain splat against a "Super Silicone" Craventette\*-processed garment, for example—and stand in quivering droplets instead of sinking in—you've seen silicones in action. Now, textiles, masonry, leather, glass, and wood can stay dryer and live longer. Now, too, G-E Dri-Film® water-repellent-treated electric motors, fluorescent lamps, and many other industrial products can stand more punishment.

For besides repelling moisture, G-E silicones resist weather, shrug off heat or cold, are unaffected by many common chemicals and solvents.

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FOR NEW DEVELOPMENTS in Silicones, Plastics Compounds, Electrical Insulating Materials, Industrial Resins and Varnishes, Plastics Laminating and Molding...write for new "G-E Chemical Products" Booklet (CDG-101) to CHEMICAL DIVISION, General Electric Company, Section 1400-1B, Pittsfield, Mass.

You can put your confidence in—

**GENERAL ELECTRIC**



GOP LEADERS MARTIN, KNOWLAND: Prompt passage is their plea on tax bill.

## Autumn Break for Business

Republicans think they can do it in July; Democrats say it can't be done before August; but this week it seems assured that sometime before autumn, the 83rd Congress will have passed the tax revision bill that offers various kinds of relief for business in general and contains some provisions of particular benefit to chemical companies. And it looks as though it'll be pretty much a partisan fight when the Administration-sponsored bill—as amended by the Senate Finance Committee in hearings that were expected to wind up early this week—comes to the floor in either house. (An earlier version of this bill was passed by the House more than a month ago, but now the representatives must decide whether to concur in the Senate's changes or to insist on their own terms.) The Republicans are eager to make good on the tax-cutting plank of their 1952 platform; and the Democrats are balking at tax changes that they contend favor the rich and may slow down the government's defense and public works programs.

So GOP leaders William Knowland in the Senate and Joseph Martin in the House are pressing for prompt passage. They hold that the best course for members of their party is to do all they can to fulfill campaign pledges, then hurry home to woo the voters.

**Seven-Ply Relief:** Major benefits for business, as voted by the House, will be in the Senate version. Of keenest interest to makers of chemicals and allied products:

- More liberal depreciation. The committee approved the House plan to allow a quicker write-off of new property for tax purposes—by means of the declining balance method. It even added a new method, designed to achieve the same results, dollar-wise. But it disappointed business groups by refusing to include second-hand machinery.

- Depletion allowances. The committee voted down an effort to lower existing allowances on oil, gas and sulfur. Then it voted to increase allowances on 27 minerals important to national defense, including nickel, mica, chromite, fluorspar, mercury and bauxite.

- Double taxation of dividends. Following the same general plan set out by the House, the committee voted to relieve individual and corporate stockholders of some \$250 million in taxes next year, \$850 million in 1956.

- Pay-as-you-go for corporations. Business groups opposed this idea in hearings, but failed to have it knocked out of the bill. The committee approved one concession, however: while the House had voted that corporations with a \$50,000 tax liability should go on a partial pay-as-you-go plan next year, calling for tax payments next September and December on 1955 income, the Senate committee would boost that figure to \$100,000.

- Relief for inventors. Income from an invention can now be spread over a three-year period, if that much time

is involved in perfecting the idea. The Senate committee voted to allow a five-year spread, even if only two years' work is involved.

- Industrial development bonds. The House voted to discourage the issuance of public bond issues for construction of factories—a device widely used in the South to attract new industries. The Senate committee voted to keep the law as it now stands. It's chiefly a regional fight.

- Corporate reorganizations, pension plans, and profit-sharing. The House voted for new regulations on these complex matters, but the Senate committee wants to string along with present rules until technical experts can work out a simpler code.

What enhances the likelihood that this Republican-wrought measure will be o.k.'d by both GOP-controlled houses of Congress is the fact that Democratic opposition seems to be wilting. In the 15-man Finance Committee, the Democrats could muster only four votes against the key amendment.

## Long-Delayed Payoff

One of the nation's most celebrated and long-drawn patent infringement cases quietly came to an end last month in California when the H. J. Heinz Co. decided to pay Charles Owens a \$250,000 settlement on a vinegar generator—rather than pursue the knock-down battle any further.

Litigation in toto consumed 12 years; involved charges that filled six suitcases.

Highlights of Owen's charges centered about the original sale of a \$7,200 generator to Heinz in 1940 guaranteed to produce 600 gal. of vinegar/day. Heinz claimed the generator didn't live up to expectation, but that it was forced to pay for it anyway. Later the entire contract was proved invalid; Heinz was enjoined from copying Owens' invention.

But the struggle was not over. In 1949, learning that Heinz had duplicated his original, Owens filed contempt proceedings, and subsequent litigation set several legal precedents—including jurisdiction of state courts over patent cases.

Then, just as the battle was warming up again (in January the supreme court of California ruled that Owens could file a separate suit for damages), a private settlement was arranged. For its \$250,000, Heinz now gets exclusive rights to the Owens generator, has all injunctions and contempt rulings set aside, gains legal peace for the first time in 12 long years.

## Teamwork on Trial

**Out in the open this week is the dispute over certain state laws that seek to limit the practice of engineering to individuals and partnerships.**

Although not of broad general interest, this controversy is competing for public attention this week with a law suit expected to be filed soon in Seattle; discussions and resolutions at last week's twentieth annual meeting of the National Society of Professional Engineers, in Milwaukee; and inauguration of General Electric's Thomas Linville, Schenectady, as president of the New York State Society of Professional Engineers, the group that has been spearheading the defense of the present limitations.

These laws are particularly restrictive in Connecticut, Michigan, New York, Ohio, Rhode Island, Washington and Wisconsin; and in Louisiana, there's an attorney general's ruling to the same effect. The restrictions are of concern to chemical companies because they circumscribe freedom of choice in selecting engineers in connection with building or remodeling projects in those states—and engineering groups in other states are thinking about campaigning for enactment of similar laws.

**Adversaries Organize:** Opponents of such legislation are doubling their efforts to get rid of those restrictions. The Committee on Engineering Laws, which now lists about 50 engineering corporations as its sponsors, is concentrating first on trying to have the New York state law amended; later hopes to make a strong stand in every state that has nailed up barriers against corporate engineering.

CEL is not discouraged by the New York legislature's failure to adopt the CEL-favored amendment last March; on the contrary, the committee feels that it made "encouraging progress" in informing people on the subject. Since then, CEL has been busy reconstituting itself with a new chairman (E. R. Ramsey of The Dorr Co.), a new executive director (F. E. Lyford, a consulting engineer and former engineer company executive), a new office in downtown New York City, and a membership campaign whose goal is 75 sponsoring companies by the end of this year.

At present, five states—Louisiana, New York, Ohio, Rhode Island and Washington—have definite prohibitions against corporate engineering. In Connecticut, Michigan and Wisconsin, CEL calls the restrictions "uncomfortable." Twenty-eight states have what

CEL considers "reasonable" regulations, and the other 12 states have no rules against corporate practice.

**Circumvention and Defiance:** In some of the states with prohibitions, engineering companies manage to do business one way or another. A number of large engineering concerns are simply disregarding the New York law, feeling that its 1935 cutoff provision is discriminatory and unconstitutional. So far, the state has made no serious attempt to enforce the law, but the companies certainly don't relish their "outlaw" existence.



NEW YORK'S LINVILLE: For foes of corporate engineering, a new leader.

Rhode Island law states flatly that corporations are not eligible for registration under the engineering law; but there and in Washington, engineering companies get along simply by having their registered engineer employees sign all plans and specifications for clients.

Specially organized subsidiaries can be used as a means of complying with the law in some states. For example, in Michigan—whose law declares that a corporation may practice engineering only if all partners, officers and directors are registered engineers in that state—a Detroit company, Albert Kahn & Associates, has set up a partnership firm called Fairbrother & Miehls.

Wisconsin's law is even stricter. In that state, an engineering corporation is barred unless all its executive directors and a majority of its stockholders are registered engineers in that state.

**Grandfather Clause:** In New York and Ohio, the engineering laws contain cutoff date clauses to the effect that corporations that were practicing before a certain date (April 15, 1935, in New York; Aug. 6, 1943, in Ohio) may continue to practice engineering if they meet other requirements.

The original Ohio law was much more inclusive; it said that "a firm, copartnership or an association" might engage in engineering practice, provided such practice was carried on only by professional engineers registered in Ohio. The 1943 amendment was backed by the Ohio Society of Professional Engineers, whose doctrine is that engineering is a profession with individualized responsibility, like medicine; but which had to recognize that many of its own members were employed by engineering concerns.

The upcoming legal test in the state of Washington centers around the construction of two oil refineries—General Petroleum's at Ferndale and Shell's at Anacortes—from plans allegedly prepared by an outside engineering corporation. The Washington Society of Professional Engineers has complained to the state attorney general, and the anticipated lawsuit may provide a "test case" of national significance.

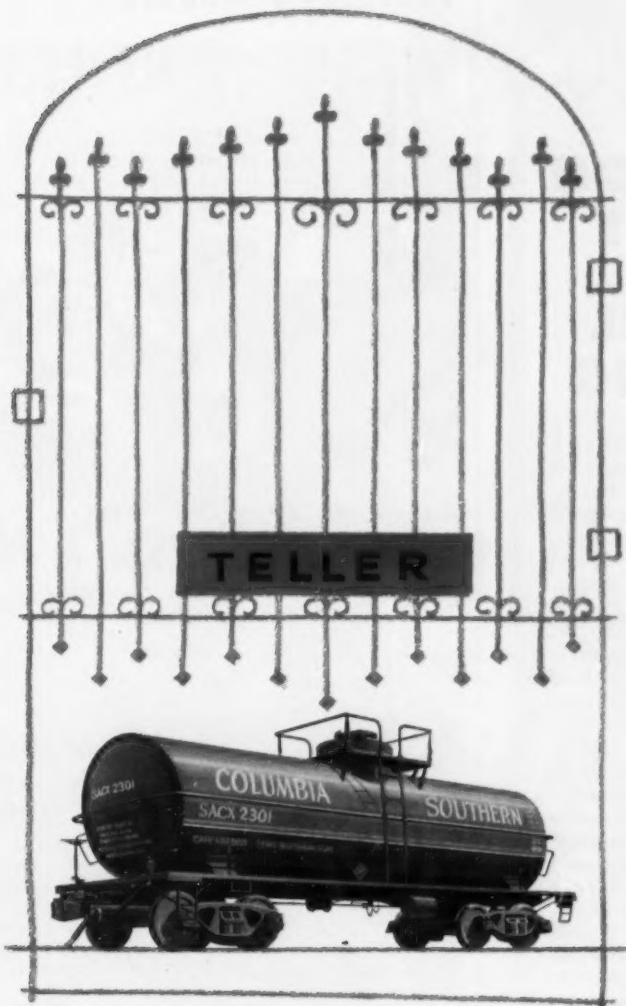
To many individual consulting engineers, the attacks on these state laws appear to be an attack on the dignity of their profession. But to some chemical companies and other major users of engineering services, these laws are regarded as another perplexity for management.

## Earnest Effort

Japanese traders, in a drive to penetrate even deeper into Latin American markets, are now turning their sights on chemical trade. Latest evidence: a six-man delegation—representing the Japan Chemical Products Exporters Association—which is currently touring the South American republics in search of more business.

Main interest of the mission is focused on getting a bigger cut of the Latin American dyestuffs, paints, and colorings markets. Orders have already been received for the full total of \$800,000 subscribed in last February's Argentine-Japanese trade protocol agreement; but the Japanese aren't resting. Both in Brazil and Uruguay, the delegation has been hard at work, selling the virtues of Japanese-manufactured materials.

Next stop: the U.S.A. and all points north.



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LITTLE LEAGUERS' enthusiasm is matched by Consolidated employees', whose . . .



PLANT (center) is the backdrop in deep center field.

### Goodwill Extension Policy

**Furthering** its good neighbor policy (CW, May 23, '53) Consolidated Chemical Industries' Houston, Tex., sulfuric acid plant has transformed nearby woodlands into a baseball park for Little Leaguers.

Not content with simply building bleachers and dugouts, the company furnishes the teen-age home team with uniforms and all equipment, offers vocal support whenever feasible.

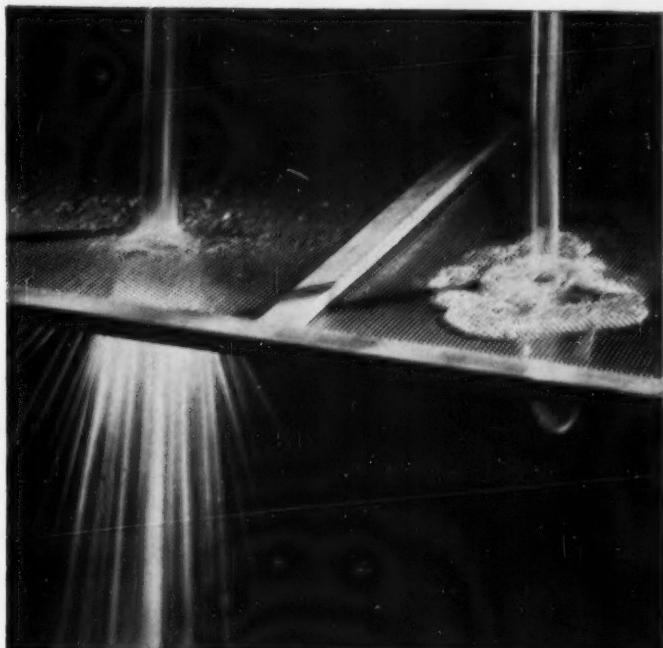
Initiated as an extension of Consolidated's drive to assure its neighbors of goodwill through beautifying the surrounding area, the Little Leaguers' gesture has blossomed into

a real personnel-booster too. Employers are openly enthusiastic about the company's support of the team, offer their own time and services as coaches, trainers.

Needless to say, Consolidated's initial intention—to assure the public that air pollution occurring from time to time in the Houston area doesn't emanate from its plant—doesn't suffer either. Rooters come to the park from the city, are conscious of the cleanliness and comfort of their surroundings. Better still: the word is carried to other citizens by loyal rooters and members of the team.

Dow

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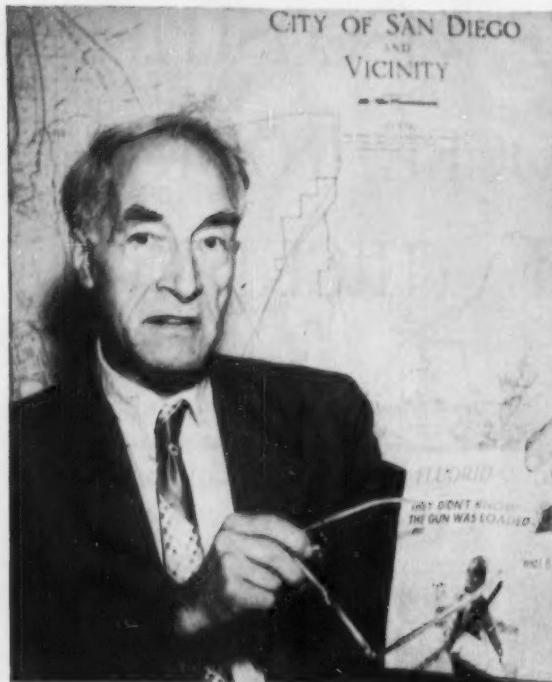
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CHIEF OF THE ANTI'S: Organic Health's Roby Day.



PROFLUORIDATION: Dental Health's Albert Anderson.

## Battle of the Ballot Boxes

As goes San Diego, so goes California. Those were the stakes when the fluoridation issue went up for vote last week; and that was the sentiment when the votes were counted and fluoridation legislation was repealed. Especially watching the San Diego vote: communities such as Sacramento, and the East Bay Municipal

Utility District—where an adverse vote will likely ring the gong on future fluoridation activity.

Rarely in the history of state elections has a single issue stirred up such agitation—both pro and con. Even the local press, in many cases, with the subject of fluoridation the chief target in pre-electioneering balloting, was

forced to take a stand. Said the *Sacramento Bee* (one of the strongest proponents): "It will not be long before the groundless arguments of the anti-fluoridationists will be revealed, and they will be forced to seek better ones—or cease in their obstructionist tactics." Further: it condemned opponents of fluoridation "for succeeding in in-

### "Anti's" Aim: Switch "No" To "Yes"

Spiced with accusations of misappropriations of funds and illegal distribution of fluoridation literature by the Health Dept., the campaign of the anti-fluoridation proponents ballooned into a veritable torrent of words in the final weeks of the California campaign. Spending a sizable amount of money (estimated at about \$25,000) on leaflet distribution and direct mail, backers refused to reveal the source of their financial support but cited "authorities" who were willing to go on record as saying that fluorine (*sic*) ingestion slows down mental processes, and results in premature birth of babies and high infant mortality.

Vegetarians and chiropractors almost as a group were the main orators against fluoridation; antivivisectionists, antipasturizationists, antirabies inoculationists, prohibitionists and just plain anti's rallied around. Speeches, in the main, were characterized by a jumble of arguments—antipublic health, antisocialized medicine, et cetera. Tenor: heated.

### "Pros's" Problem: "Yes" Means "No"

Nowhere in California has the campaign in favor of fluoridation of municipal water supplies waxed hotter than in San Diego, where water's actually been fluoridated since late in 1952. Reason: tricky wording in the voting ballot—a "yes" vote is a vote in favor of repealing the fluoridation law.

Profluoridation forces fear the actual wording on the ballot more than they do putting the matter up for revote. Why? According to a spot check survey in mid-May of 1,000 homes in the San Diego area, 40% of the citizens favored retention of the law, 15% were against it, 45% had no opinion.

Further backing the pros: the San Diego Dental Society, the County Medical Society, and the County Pharmaceutical Assn. Local PTA and labor organizations have supported the drive too.

For the most part, campaign activity has been confined to a local speakers' bureau with a full-time public relations director heading it up. Expenses: around \$10,000.



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copolymers are also basic ingredients in the popular water-base paints.

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## BUSINESS & INDUSTRY

fluencing public officials . . . often by scare tactics . . . to turn down or shy away from meeting proposals headlong."

Still hanging on the fence, as an obvious example: the directors of East Bay MUD, who, despite backing of the attorney general, have consistently shelved the red-hot issue of fluoridation under the pretext that they didn't have the power to approve it.

**Others are Watching:** Awaiting the outcome of the San Diego vote, on a quieter plane, are communities such as Monterey Park—now set to discuss the matter again on June 14. Now that San Diego has voted for fluoridation repeal, it's a good bet that the Monterey Park city fathers will im-

mediately drop the issue on the grounds that the "anti's" are now so well organized, resistance at this time would be virtually useless.

Long Beach (where the issue was suspended) is overtly awaiting developments in San Diego; Roseville (pop. 8,723) is considering a proposition to install \$5,000 in fluoridation equipment.

Only guesses are forthcoming as to where the antifluoridation faction will turn next. Palo Alto is due to vote on a referendum to fluoridate next November. But it's a good bet that the more rabid proponents won't wait that long to launch another red-hot campaign.



## Plastic as Space Detective

AT THE HEART of the latest futuristic adventure: polyethylene. In a new effort to track and measure cosmic rays for the Office of Naval Research, engineers of General Mills, Inc., Minneapolis, recently built and launched this polyethylene balloon known as the "Super Skyhook"—282 ft. long, 200 ft. in diameter when fully inflated. Its 72 long plastic segments were only about  $\frac{1}{500}$ th of an inch

thick; if spread out flat, would cover three acres. The Super Skyhook carried 50 lbs. of instruments to a height of nearly 22 miles, said to be 6,000 ft. higher than the previous record. After 13 hours aloft, the instruments were automatically released and parachuted to the ground, some 40 miles south of the launching site. After losing that weight, the balloon rose another mile and burst.

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## BUSINESS & INDUSTRY . . . . .



GOVS. KENNON, MURRAY, JORDAN: In state labor tiffs, they tread softly. WIDE WORLD

### LABOR . . . . .

**Right-to-Work Laws:** This week, the controversy over "right-to-work" laws is raging in Louisiana, Oklahoma and Idaho; and there's little doubt but that other state legislatures will be taking up this question next winter. The current set-to is particularly bitter in Louisiana, where spokesmen for employer and labor groups are plying all their persuasive powers in hearings before the state senate's industrial relations committee. In Idaho, where the proposal is to be voted on in a public election this November, CIO and AFL groups are asking the state supreme court to order a change in the title for the measure; they aver that the "right-to-work" designation is a subtle argument in favor of the proposed law.

In general, the governors of those states are treading softly in the strife over these bills, figuring that it would be poor politics to antagonize either side. Govs. Robert Kennon of Louisiana and Len Jordan of Idaho would have to enforce the law, if adopted; Gov. Johnston Murray of Oklahoma is not eligible for re-election this year, but his wife is a candidate for the Democratic nomination. So far, only one of the 10 candidates to succeed Murray has taken a stand in favor of the right-to-work bill.

**Monopoly in Unions:** Look also for possible action on revision of the Sherman Antitrust Act to cover certain labor union practices that have been criticized as "monopolistic." Attorney General Herbert Brownell's National Committee to Study the Antitrust Laws has received from the law department of the National Assn. of Manufacturers a recommendation that a union control section of the Antitrust Act be drafted for Congressional consideration. Citing various court decisions and legal opinions, NAM con-

cludes that:

" . . . the law now permits labor unions to engage in activities that not only run counter to the basic policies of the antitrust laws but also are completely unrelated to the legitimate objectives of organized labor."

NAM advocates a ban on combines made up of local unions to impede or halt production or movement of goods in or for interstate commerce.

**Strikes Stirring:** Strike activity is up in the chemical process industries this week. Among recent sore spots:

- Turning down a company offer to arbitrate two grievances, members of Local 77, United Gas, Coke & Chemical Workers (CIO), voted to go on strike at the Mathieson Chemical research and production facilities at Niagara Falls, N.Y. About 600 employees are covered by the union contract.
- Of the 24 paintmaking firms in St. Louis and vicinity, 18 were hit by a strike of some 650 members of the Paint Makers & Warehousemen's Union. While the employers' association is offering a 5¢/hour increase and a two-year contract, the union is demanding a 10¢ rise and a one-year agreement.

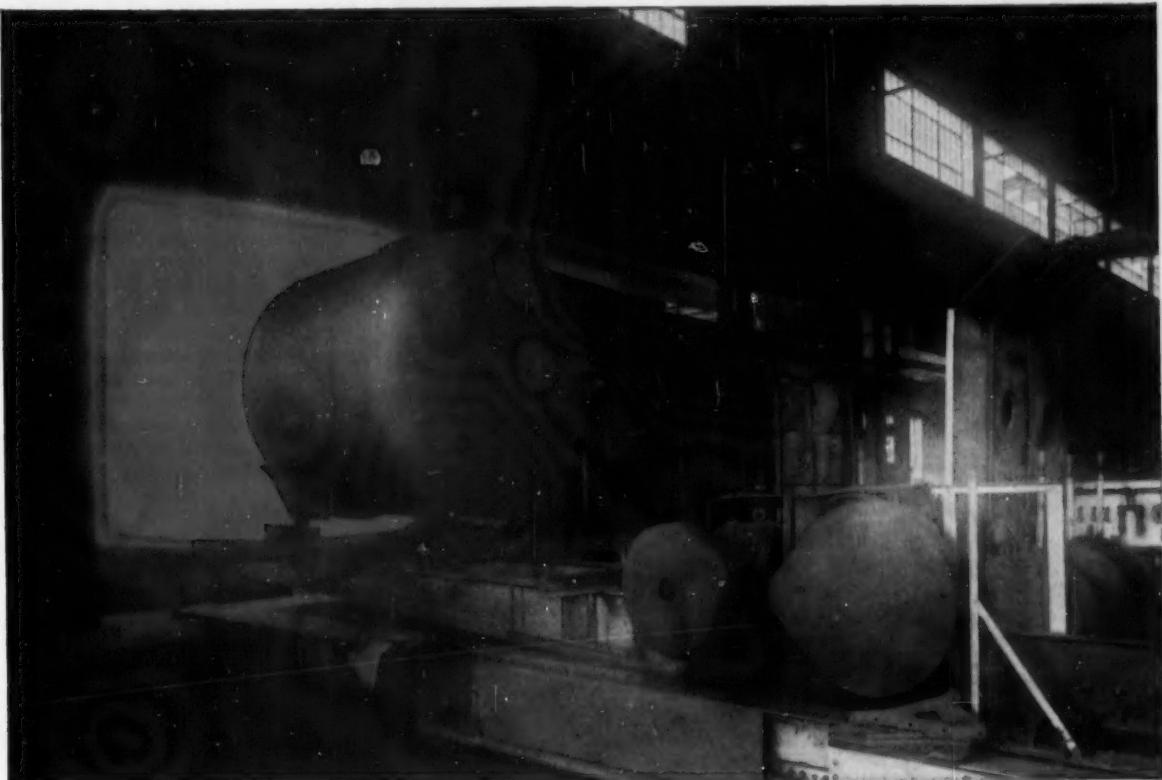
• In an effort to prevent another strike at the Rensselaer (N.Y.) plant of General Aniline & Film, where production was halted for several months in 1952, federal and state mediators have scheduled meetings with company and union leaders. The old contract, covering approximately 550 persons represented by International Chemical Workers Union (AFL), has been extended temporarily.

• Labor unrest seems to be catching in New Jersey this month. Locals of the United Rubber Workers (CIO) have been striking against two manufacturers of floor coverings, Congoleum-Nairn at Kearny and Pabco Prod-

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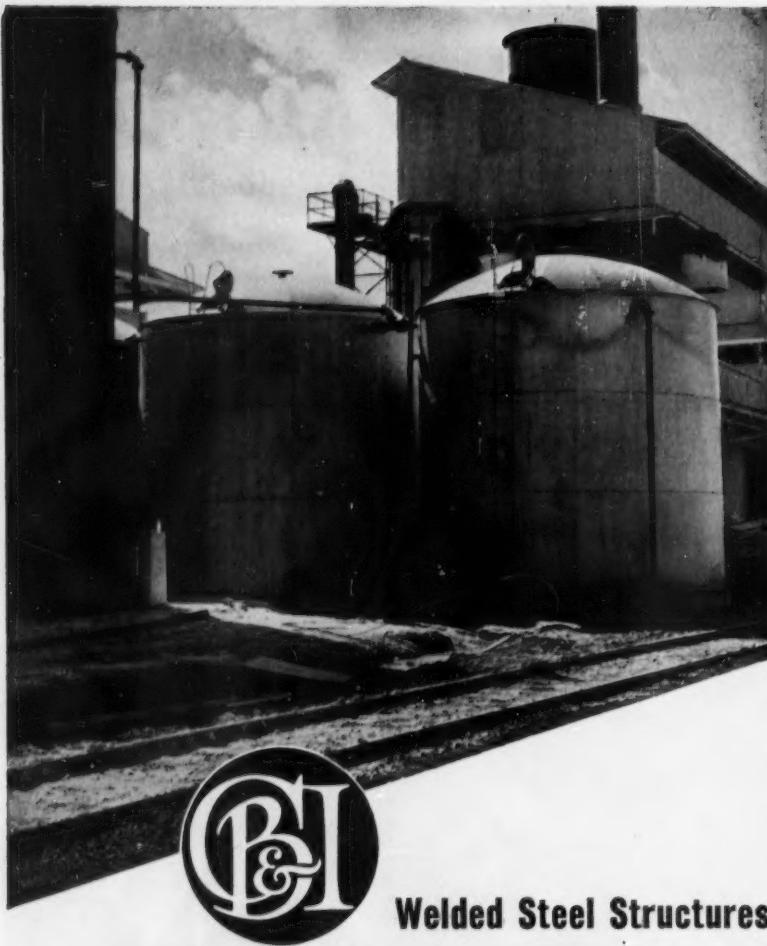
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## B & I . . . . .

ucts in Raritan township. A jurisdictional squabble—still awaiting a decision by the National Labor Relations Board—has delayed wage negotiations at American Cyanamid's Calco plant in Bound Brook, with two AFL unions seeking to represent certain maintenance employees. And promotion of four helpers to third-class pipefitter classification touched off a walkout at the California Oil plant in Perth Amboy; the workers wanted the promotions to be "permanent" rather than "temporary."

**Union Backs Boss:** At the Shell Chemical plant in Denver, the labor union recently went to bat for a supervisor. Bill Sherrill, a supervisor, had been promoted out of the bargaining unit before the first contract was signed with Local 477, Oil Workers International Union (CIO); but a special agreement provided that Sherrill should have "demotional rights" permitting him to go back into the bargaining group. When there was a lay-off this spring, the union insisted that Sherrill be allowed to go back to his old job (if he could pass the physical exam) or else receive company sick benefits.

## L E G A L . . . . .

**Hefty Damages:** The U.S. Court of Appeals at New Orleans has taken under advisement an appeal about dropping one of the charges in the \$75-million patent suit filed last year by Kinnear-Weed Corp. against Humble Oil & Refining Co. The disputed paragraph—which asserts that Humble violated the federal antitrust and monopoly statutes—was stricken by order of the district court, and Kinnear-Weed is asking the circuit court to restore the paragraph before the case comes up for trial in district court in Beaumont, Tex.

**Speedup for Customers:** To New York City's commissioner of health, Dr. Leona Baumgartner, spokesmen for pharmaceutical companies have presented a petition for a new regulation that would bring a speedup for persons needing antibiotic preparations. The 25-page petition urges that retail druggists be permitted to make over-the-counter sales of antibiotics that have been released by the U.S. Food & Drug Administration, contends that the present rule is in conflict with the Federal Food and Drug Law. Sponsoring the petition: the Drug, Chemical & Allied Trades section of the New York Board of Trade; American Drug Manufacturers Assn., American Pharmaceutical Manufacturers

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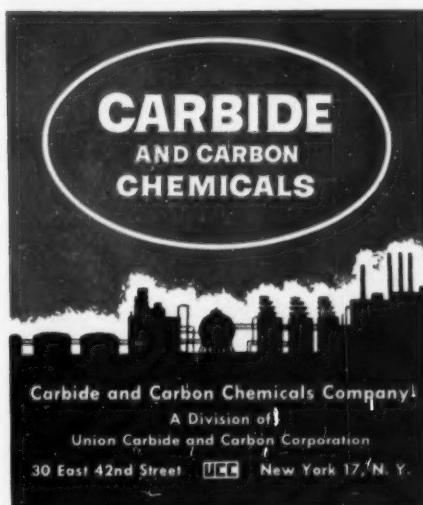
CARBIDE's extensive expansion program has made 2-ethylhexanol readily available. It is an intermediate for the most widely used plasticizers and surface-active agents. 2-ethylhexanol is an excellent solvent for many types of gums, resins, and waxes. In addition it is a defoaming agent for textile, paper, chemical, and photographic processes as well as a dispersing and wetting agent.

Another CARBIDE product, diisobutyl carbinol, has many uses similar to 2-ethylhexanol. So if you want either an 8 or a 9 carbon alcohol call the nearest CARBIDE representative for assistance.

For further information—ask for the technical information sheets on 2-ethylhexanol (F-7908) or diisobutyl carbinol (F-7001). In Canada: Carbide Chemicals Sales Company, Division of Union Carbide Canada Limited, Toronto.

**new "ALCOHOLS" book available**

Another in CARBIDE's series of family books is now available. It has the information you need on twenty different alcohols produced by Carbide and Carbon Chemicals—their uses, properties, specifications, methods of analysis, and shipping data. For your copy ask for "Alcohols" (F-4731).



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Stainless Steel



Enduro neither affects nor is affected by most chemical and food products. Resists corrosion — resists hard use and abuse — never needs painting—lasts indefinitely.

B & I . . . . .



WIDE WORLD

DR. BAUMGARTNER: For ailing New Yorkers, antibiotics without red tape?

Assn., New York State Pharmaceutical Assn., Pharmaceutical Council of Greater New York, and the Proprietary Assn.

**No Back Numbers:** Going into effect this month is a new clause in the Maryland state law on trademarks. Under the new "self-clearing" procedure, trademarks will have to be renewed every 10 years. This is intended to clear the books of old trademarks that are no longer in use. The Maryland secretary of state is required to send every trademark registrant a written notice of the need to renew or drop his old registrations.

**Kraft Paper Suit:** In a petition filed in U.S. District Court at Wilmington, Del., the St. Joe Paper Co. of Port St. Joe, Fla., is asking for damages that might total as much as \$8 million, alleging that a Fourdrinier papermaking machine produced and sold by Pusey & Jones Corp., Wilmington, was delivered late and was not up to specifications. The Florida firm admits that Pusey & Jones worked at its own expense to get the machine in operation, but complains that although the delivery date was set for July 30, '52, it was not possible to produce paper on the machine until June 3, '53.

**'Fair-traded' Film:** The Federal Trade Commission has assigned Hearing Examiner James Purcell to take evidence on Eastman Kodak's request for modification of the FTC's 1944 and 1947 orders relating to Eastman's Kodachrome and magazine photographic film. The 1944 order barred Eastman from signing resale price maintenance

# Make Surface Coatings Fire Resistant

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...The new borate additive  
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This newest development of American Potash & Chemical Corporation, in conjunction with recognized paint authorities, gives exceptional fire-resistant properties to water-base protective coatings. BOROTHERM, properly formulated, makes coatings which meet Department of Commerce Specification CS-42-49 (Class F) and Federal Specification SSA-118a for fire resistance. It is especially adaptable for use with coating grade polyvinyl acetate to develop inexpensive washable fire resistant qualities in insulating and wallboard coatings for industrial and non-industrial uses.

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*New instrument covers the increasingly important near-infrared region.*

The Beckman Model DK Spectrophotometer is the first commercially-available instrument designed specifically for the near-infrared region of the spectrum—filling an important gap in spectrochemical analysis. Its lead sulfide detector and quartz monochromator permit high-speed transmittance recording at cost and performance unmatched by conventional infrared instruments. Using a photomultiplier detector for ultraviolet work, the Model DK offers a guaranteed wavelength range of 220 to 2700 m $\mu$ —wider than that of comparable spectrophotometers twice the price.

The DK's "double-beam ratio" principle is a unique system for percent transmittance recording. (1) It provides the stability of double beam operation, with a single receiver. (2) The fast beam chopping (480 times per second) takes full advantage of the sensitive lead sulfide detector.

#### Resolution

0.1 m $\mu$  at 220 m $\mu$ ; 2.5 m $\mu$  at 1000 m $\mu$ ; 5 m $\mu$  at 2500 m $\mu$ —higher than any other instrument in its price range.

#### Scanning Speeds

For the entire 220 to 2700 m $\mu$  range, any of 5 speeds is selectable: 5, 15, 50, 150 or 500 minutes. At highest speed, the near-infrared is traversed in one minute, while very low speeds are available for extreme resolution.

#### Stray Light

Less than 0.2 percent 0.2–2.5 m $\mu$

#### Recording Features

Ozalid-reproducible paper...adhesive strips for easy wavelength reference...chart speeds of  $\frac{1}{2}$ , 1 and 2 inches per minute...

*For additional information write for data file No. 98-17*

**Beckman**

*division*

BECKMAN INSTRUMENTS, INC.  
FULLERTON 1, CALIFORNIA

#### B & I . . . . .

agreements on those two kinds of film, and the 1947 revision permitted Eastman to enter into such contracts as long as at least one other brand of general-purpose color film is being sold "in free and open competition." Now, says Eastman, it should be allowed to negotiate price maintenance agreements on both kinds of film because the Ansco division of General Aniline & Film is manufacturing and selling color film that's competitive with Eastman's magazine film.

**Export Policing:** Chemicals and pharmaceuticals figure in two of the latest cases in which the Bureau of Foreign Commerce is cracking down on violators of the nation's emergency export regulations, which are designed to keep strategic materials out of the Iron Curtain countries.

- An individual exporter whose foreign trading privileges were suspended last year after he admitted charges that he had falsified shipping instructions on cargo billed for Hong Kong has been found to have broken the terms of that suspension by taking part in export of isopropyl alcohol and DDT from the U.S. to Portugal.

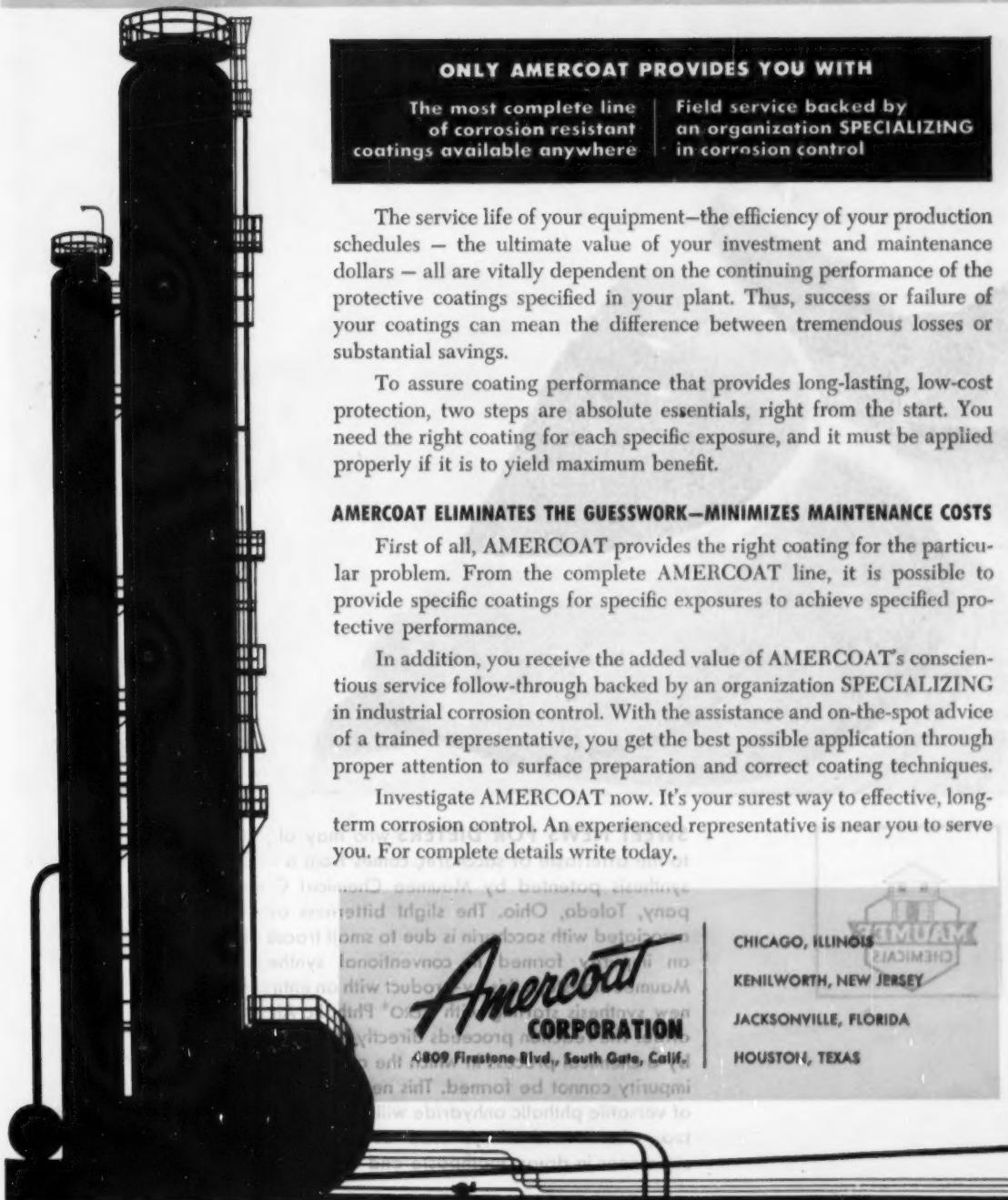
- The bureau has denied all export privileges "for the duration of export controls" in the case of the Well Lu Trading Co. of Bangkok, Thailand. That company was found to have conspired to smuggle \$25,000 worth of U.S.-made penicillin into Hong Kong in 1952.

#### Down for the Count

After reviewing the aluminum requirements of aircraft manufacturers last week, the Office of Defense Mobilization has decided to cancel the third round of its aluminum expansion program. Directly concerned in the move: Harvey Aluminum Co., Torrance, Calif.; Olin Industries, Inc. (recently merged with Mathieson Chemical, Baltimore), and the Wheland Co., Chattanooga—all of whom had been granted quick tax write-off allowances and the option of selling their output to the government during the early years of operation.

None of the three ever started work on production facilities, however. Olin and Wheland had difficulty in obtaining financing for their projects, had asked for government guarantees (never forthcoming) so that they could get money on more favorable terms. Harvey, which planned to build its plant in Oregon, ran into a snarl of electric power troubles. Result: the government may find it relatively simple now to extricate itself from its expansion goal commitments.

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Field service backed by an organization SPECIALIZING in corrosion control

The service life of your equipment—the efficiency of your production schedules—the ultimate value of your investment and maintenance dollars—all are vitally dependent on the continuing performance of the protective coatings specified in your plant. Thus, success or failure of your coatings can mean the difference between tremendous losses or substantial savings.

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In addition, you receive the added value of AMERCOAT's conscientious service follow-through backed by an organization SPECIALIZING in industrial corrosion control. With the assistance and on-the-spot advice of a trained representative, you get the best possible application through proper attention to surface preparation and correct coating techniques.

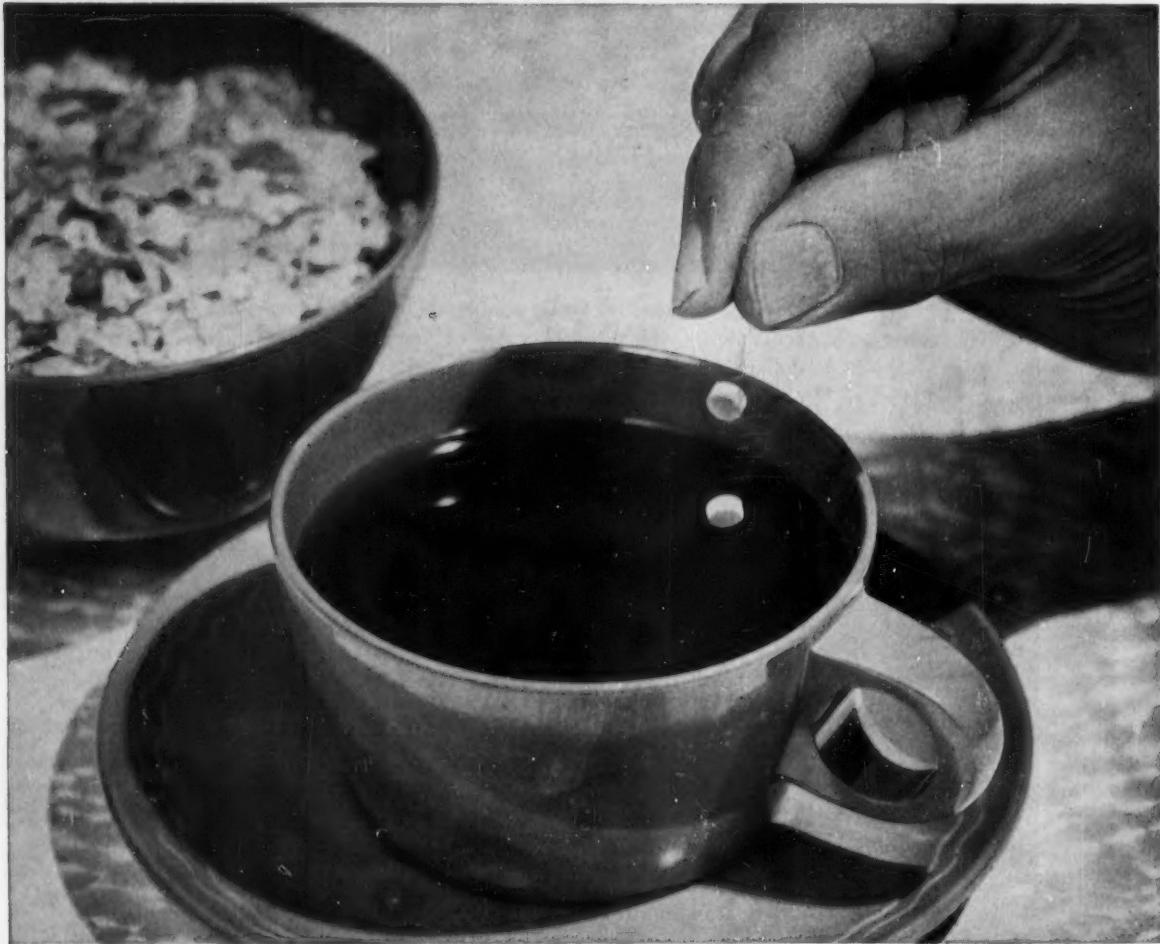
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# Life ...on the



**SWEET NEWS FOR DIETERS** who may object to the aftertaste of saccharin, comes from a new synthesis patented by Maumee Chemical Company, Toledo, Ohio. The slight bitterness often associated with saccharin is due to small traces of an impurity formed in conventional synthesis. Maumee sidesteps this by-product with an entirely new synthesis starting with AERO\* Phthalic Anhydride. The reaction proceeds directly to saccharin by a chemical process in which the objectionable impurity cannot be formed. This new contribution of versatile phthalic anhydride will be welcomed, too, where saccharin is used as a non-sugar sweetener in drugs, toothpaste and tobacco.

# Chemical Newsfront

**CHEAPER BY THE TANK TRUCK.** For large volume users of AEROSOL® Surface Active Agents, Cyanamid has just introduced delivery by tank truck at a lower price.



**"OVER-HEATED" WATER INCREASES QUENCHING POWER** of salt bath by lowering operating temperature. This unexpected fact was discovered by Cyanamid in a search for a molten heat-treating bath which would operate at 275°F or lower. Lowest operating temperature previously obtained was 294° F with AEROHEAT® 300. When other additions failed, water was tried, and reduced the temperature without exploding or boiling off. The result: a bath of high quenching power and a useful low-temperature tempering bath—at no added expense.

A NEW TEXT on the application and handling of AEROSOL has been prepared as a guide to efficient and economical use of these powerful surface active agents. For a copy, just check and mail the coupon.

CEN 5-54

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SUPREME COURT JUSTICES\*: In last-day decisions, much of chemical import.

## Road Signs for Industry

Already, the nine black-robed men of the U.S. Supreme Court had made their 1953-54 session an important one for businessmen. In their first year under their new chief justice, these men of law had posted numerous industrially significant decisions: upholding "fair-trade" laws, distinguishing between companies' "parallel" and "concerted" action in antitrust cases, and prohibiting discrimination in treatment of union and nonunion employees. Some rulings had been particularly relevant to the chemical process industries; e.g., refusal to upset the circuit court's judgment holding the U.S. not liable for damages in the 1947 explosion of fertilizer-grade ammonium nitrate at Texas City, and nullification of the Texas state tax on gathering of natural gas.

But just before starting their summer vacations last week, the Supreme Court justices proclaimed four decisions of primary interest to chemical and petrochemical management. Covered are such vital points as pricing of petrochemical feedstocks, regional water supply policy, availability of hydroelectric power, and responsibility of labor unions for damages to company property.

In these cases, the high court construes the law of the land to mean:

- That the Federal Power Commission has jurisdiction over pricing of natural gas sold by Phillips Petroleum and other "independent producers," as well as gas producers who also are

\* Left to right, seated: Felix Frankfurter, Hugo Black, Chief Justice Earl Warren, Stanley Reed, William Douglas; standing: Tom Clark, Robert Jackson, Harold Burton, Sherman Minton.

in the pipeline business.

- That after completion—scheduled for 1969—of a new dam and reservoir, New York City may take an additional 360 million gal. of water per day from the Delaware River, providing that New York maintains a certain minimum flow for the benefit of industrial and municipal water users in New Jersey, Pennsylvania and Delaware.

- That the New York State Power Authority and its Canadian counterpart can go ahead with construction of the proposed \$600-million hydroelectric power project on the St. Lawrence River, which—according to engineers' estimates—will result in monthly savings of \$2.5 million for electricity users in northeastern U.S.

- That a company can collect in a state court for damages resulting from labor union actions that are illegal under the Taft-Hartley law.

**Broader than Expected:** The Supreme Court's 5-to-3 decision to reverse the FPC's own ruling that it didn't have authority over sales by independent producers was even broader than industry had expected: the opinion (written by Justice Minton) holds that Congress intended for FPC to regulate all wholesaling of natural gas in interstate commerce. This might apply to sale of gas to a petrochemical plant, even though it's in the same state as that in which the gas is produced, if the chemical products are sold in other states.

Other possible effects of this ruling: independent producers wishing to avoid federal regulation may be reluctant to sell gas to pipeline com-

panies; this would tend to make natural gas plentiful in states where it's produced, scarce in other areas. President Frank Porter of the American Petroleum Institute feared the decision would have the effect of bringing under federal control persons and corporations not engaged in interstate commerce; and Gov. Allan Shivers of Texas warned that more regulation would destroy the incentive to find and develop new wells.

In the Delaware River case—of special concern to chemical companies at Camden, Philadelphia and Wilmington that use large quantities of water—the court adopted intact the recommendations of Kurt Pantzer, who took testimony as court-appointed referee. One provision: a hydraulic engineer of the U.S. Geologic Survey will be named as river master to administer and police the daily water releases and report operations to the court at the end of each year. Downstream water users will be hoping that the stabilized flow will be sufficient for all purposes, and will reduce the presently wide variations in the stream's salt content.

The power project at the International Rapids section of the St. Lawrence is directly related to the seaway program and is expected to cut power costs throughout New York state and New England. It was opposed by the Lake Ontario Land Development & Beach Protection Assn., which argued that the project would raise the water level in Lake Ontario, damaging its members' property without compensation. The government denied this.

In the labor case, Laburnum Construction Co. vs District 50, United Mine Workers, the court decreed that a company might be entitled to money damages under state law and to an injunction and administrative relief under the National Labor Relations Act.

These decisions will function as new road signs for industry; but like the "go slow" and "detour" signs encountered on highways, these court rulings are not necessarily permanent. And in the Phillips gas case, the new decree may not last long; Phillips and its allies will ask Congress to amend the Natural Gas Act of 1938 so that independent producers are specifically exempted from FPC control.

The Supreme Court's next term—which begins Oct. 4—probably won't produce so many decisions of chemical import. There'll be arguments on handling of allegedly Communistic labor unionists, and possibly a new attempt on the part of some retailers to scuttle the "fair-trade" laws.

# BIG PROFIT OPPORTUNITY IN LIQUID DETERGENTS

## STEPAN Complete Line of Liquid Detergent Bases Helps Soapers Cash-In

From heavy-duty floor cleaners to bubble bath specialties... from textile scouring compounds to milady's creme shampoos, there are Stepan liquid detergent bases and finished formulations available to help you develop your own product.

Included in the Stepan line of liquid detergent base materials are the new higher fatty alcohols and fatty alcohol sulfates important for superior detergency and mildness to the skin in such products as liquid dishwashing detergents, heavy-duty household detergents and other detergents in either liquid, solid, or flake form.

The completeness of the Stepan line of base materials makes it possible for you to select just exactly the correct ingredients for blending to your use and price requirements.

Why not let Stepan materials, facilities, and experience help you to capitalize on the big and growing liquid detergent market?

### Liquid Alkyl Aryl Sulfonates

The Stepan line includes a variety of liquid alkyl aryl sulfonates offering economical sources of active ingredients and tailored to meet various price and end use requirements. Among these products and of special interest are DS-60 and DS-35 de-salted sodium alkyl aryl sulfonates. In addition to their uses as a liquid dishwashing detergent base, these products are ideal as bases for scrub soaps, dairy cleaning compounds, or any other cleaning compound which requires the combination of economy, superior detergency, and superior wetting action.

### Non-Ionic Detergents and Foam Stabilizers

Stepan LDA, an alkylolamide, provides exceptional foam sta-

bility and is highly recommended for use in alkyl aryl sulfonate and fatty alcohol sulfate formulations where high foam stability is desired.

**Amides**—Stepan can also produce special amide type non-ionics to your own specifications. Our large production capacity may well effect important savings to you on products of this type.

### Sulfated Alcohols

**Lauryl Sulfates**—An extremely wide range of sodium, ammonium, potassium, and triethanolamine lauryl sulfates are available for detergent and other uses. These are obtainable in paste, liquid, or powder forms and are unmatched for purity and uniformity.

#### Higher fatty alcohol sulfates

—These new products in the Stepan line offer excellent detergency and

20.2% of the market in four years is the record for a liquid dishwashing detergent in one major city. It now outsells all other dishwashing products in that market. Synthetic detergents as a whole have captured better than 50% of the market, nationally. Stepan Chemical Company has a complete line of liquid detergent bases and finished formulations to help soapers profit from this growing market. Many of these base materials are also advantageous for use in solid, flake, or paste form detergents.

the additional advantage of low de-fattening to the skin. They are ideal for use in shampoos, heavy-duty household detergents, and other detergents in liquid or solid form.

### Savings Through Stepan Blending Service

The completeness of the Stepan line can also make possible consolidated raw material buying. This, in combination with Stepan's extensive blending facilities, can effect important savings for you.

Carload total of less than carload ingredients, where suitable, can be blended at small additional cost and carload price savings effected on the individual items.

### Laboratory Assistance

The Stepan Chemical Company has had over twenty years experience in the field of synthetic detergents. This experience and the new Stepan laboratory facilities are available to help you in developing and producing your detergent product.

Write for Free information and Samples...

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## These Are the Major Virtues Claimed By

### Plastic Dinnerware

- Durability
- Lightness
- Quietness
- Insulation

### China Dinnerware

- Cleanability
- Hardness
- Stability
- Stain-Resistance

## Old Fighter; New Foe

It appears by this week that the decade-long fight between plastics manufacturers and chinaware producers for the big U.S. dinnerware market (\$125 million at factory value) is breaking out into the open. Dogged by competition from English, German and Japanese imports, pottery makers are far from complacent about the 20% cut of the domestic dinnerware business plastic molders now take. That's why china makers are swinging their big guns—long leveled on foreign china—on the domestic foe. New target: plasticware in general and melamine in particular.

Hostilities actually began during the early part of World War II when the Navy stocked a destroyer with melamine dishes. Thereafter plasticware bobbed up in restaurants, hotels, hospitals, schools and other institutions—and then in private homes. That incited the Vitrified China Assn. and the U.S. Potters' Assn.—and the tussle started.

**No Simple Task:** But plastic promoters were, as yet, by no means comfortably ensconced. Their biggest problem: to erase public memory of earlier and inferior plastic dinnerware. So they set about exploiting melamine's chief virtue—resistance to breakage. The famous stroboscopic picture of plastic plates bouncing unbroken off the floor were featured in advertisements—pictorial proof of durability. Even the chairman of VCA's research committee and chief defender of china, Robert Gould, admits: "If

you haven't been terrifically impressed when someone threw a plastic plate against the wall without breaking it, then you're not human."

High resistance to breaking or chipping, promoters say, means economy in operation, especially in institutions and restaurants where tableware is mass-handled, appreciably reduces replacement costs.

Other major virtues claimed by melamine molders are:

- Light weight—and thereby economy on labor costs in restaurants, etc. A bus boy, for instance, can carry almost three times as many plastic dishes in every load. Moreover, lightness and design permit better stacking, save space.

- Comparative quietness in handling—important to restaurateurs and hospital administrators who want to avoid wear and tear on customer and patient nerves.

- Light-fast, can't-chip-off colors.

- Low thermal conductivity that prevents food from cooling too fast, makes it unnecessary to preheat plastic plates. (Potters contend this simply is not so, that conductivity of the plate surface does not determine how fast food cools.)

**Taking up the Challenge:** China spokesmen, on the other hand, claim specific advantages for their product. Included:

- Cleanability. Their proof: a test run by two members of the research staff of the National Sanitation Foundation at the University of Michigan.

Bacteria, planted on plastic and china plates and isotope-tagged, were counted before and after washing in a standard machine at standard temperature and detergency. Conclusion: plastic plates were not cleaned as well as china (china, 97-99% bacteria removal; plastic, 56-84%). (Melamine defenders discount the radioactive count, use their own "swab test" and reach the opposite conclusion. VCA says that the swab test is misleading because "bacteria are harder to dislodge from plastic, which does not wet as easily as china.")

- Hardness. China will withstand the ordinary pressure of table knives; melamine can be scored, making it more difficult to clean. The Society of the Plastics Industry admits that plastics can be indented, but asserts normal dishwashing with alkaline detergents cleans the surface. China, moreover, can also be scratched—especially in stacking where the unglazed foot of one plate will scratch the face of the plate beneath.

- Heat stability. China remains almost unchanged even at high temperatures; plastic surfaces, they say, dull and roughen at 105C, change color at 150 degrees.

(SPI contends that these tests are misleading because temperatures used are higher even than those required for sterilization in hospitals.)

- Stain resistance. It will not stain from contact with cigarettes, lipstick or coffee.

- Quick drying ability—important in restaurants and institutions where toweling is usually considered unsanitary.

Wilbert Betz, secretary-treasurer of the USPA, maintains that the china industry's countercampaign is paying off, says: "There's a gradual return by restaurants to chinaware."

SPI admits this is happening in a few restaurants, but only as a result of "attempts to mix the use of china and plastic tableware and to use the same cleaning techniques and detergents as are used with china." When proper methods have been used, says SPI, "in case after case, china has been completely thrown out by restaurants in favor of the plastic dinnerware."

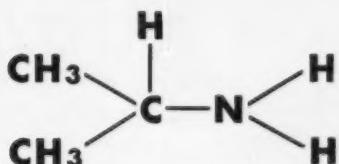
The chemical industry, with an interest in both sides, is disturbed by the controversy that is currently raging. And some sideliners fret: they have seen what happened when zealous overzealous discretion in cigarette and beer promotion battles. In that kind of dog-eat-dog countercharging—there's never any winner.

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FROM RESEARCH TO INDUSTRY

SHARPLES

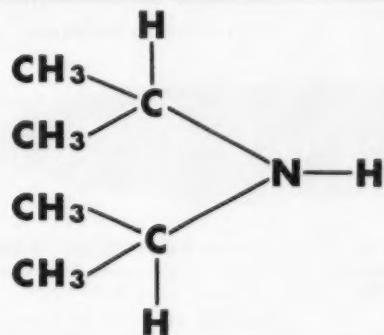
# ISOPROPYLAMINES

## Isopropylamine



Isopropylamine is the lowest molecular weight alkyl amine which can be supplied in anhydrous form without the use of special pressure containers.

## Diisopropylamine



Both products are available in tank cars and drums.

*Samples and technical information sent upon request.*



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# KAY-FRIES DIETHYL MALONATE



## KAY FRIES SPECIFICATIONS

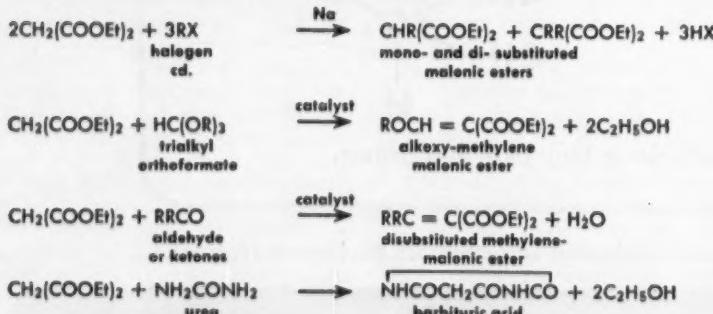
purity	99.0% min.
nitrogen	0.01% max.
acidity	0.1% max. as malonic acid

A new high purity DIETHYL MALONATE has been developed by the Kay Fries laboratories. Kay Fries DIETHYL MALONATE, an old stand-by of the organic chemist, is available in commercial quantities.

Through this improved quality, development of new uses will be aided, and the operation of established processes made more efficient.

An active methylene group in a dicarboxylic acid ester is of particular interest and has been responsible for much of its present use in the manufacture of pharmaceuticals, including barbiturates and anti-malarials.

## TYPICAL REACTIONS



(Many substituted malonates may be hydrolyzed and decarboxylated to the corresponding subst. acetic esters.)

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New York Division, N.Y.



MONSANTO'S CURTIS: Will speak on "Molecules to Management."

## F O R E I G N . . . . .

**Management Training/Canada:** The various aspects of management training will be an opening day feature of the 37th annual conference of the Chemical Institute of Canada to be held in Toronto next week. Presenting the current thinking of U.S. chemical firms: Monsanto's Francis Curtis (above). Upwards of 1,200 delegates are expected to attend the three-day meeting—many of them from the U.S. and foreign countries.

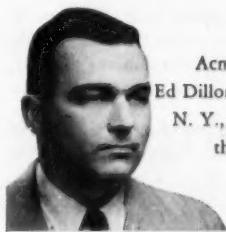
**Yeast/Philippines:** The San Miguel Brewery Co., Manila, has opened a plant with a capacity to produce 60,000 lbs. of dry yeast/month—sufficient to supply the requirements of the baking industry as well as all the household needs in the Philippine Islands. The plant opening marks the resumption of yeast manufacture by San Miguel after a lapse of nearly 10 years. Former facilities were destroyed in the battle of Manila.

**Synthetic Rubber/Great Britain:** A report has been circulating in recent weeks that the Esso refinery at Fawley, near Southampton, is preparing to manufacture butyl synthetic rubber. Esso officials admit "it's a serious possibility" but point out that it's equally possible that the parent company will decide to "go ahead with butyl rubber production" at Fawley, in France, or in Germany—where a new refinery has just come in near Hamburg.

London observers, however, believe that politics may be a strong factor in Esso's ultimate decision. The British rubber industry (and consumers)



## **AIM\*** for SAFER shipping with **Acme Steel Strapping Ideas**



Acme Idea Man,  
Ed Dillon, New York,  
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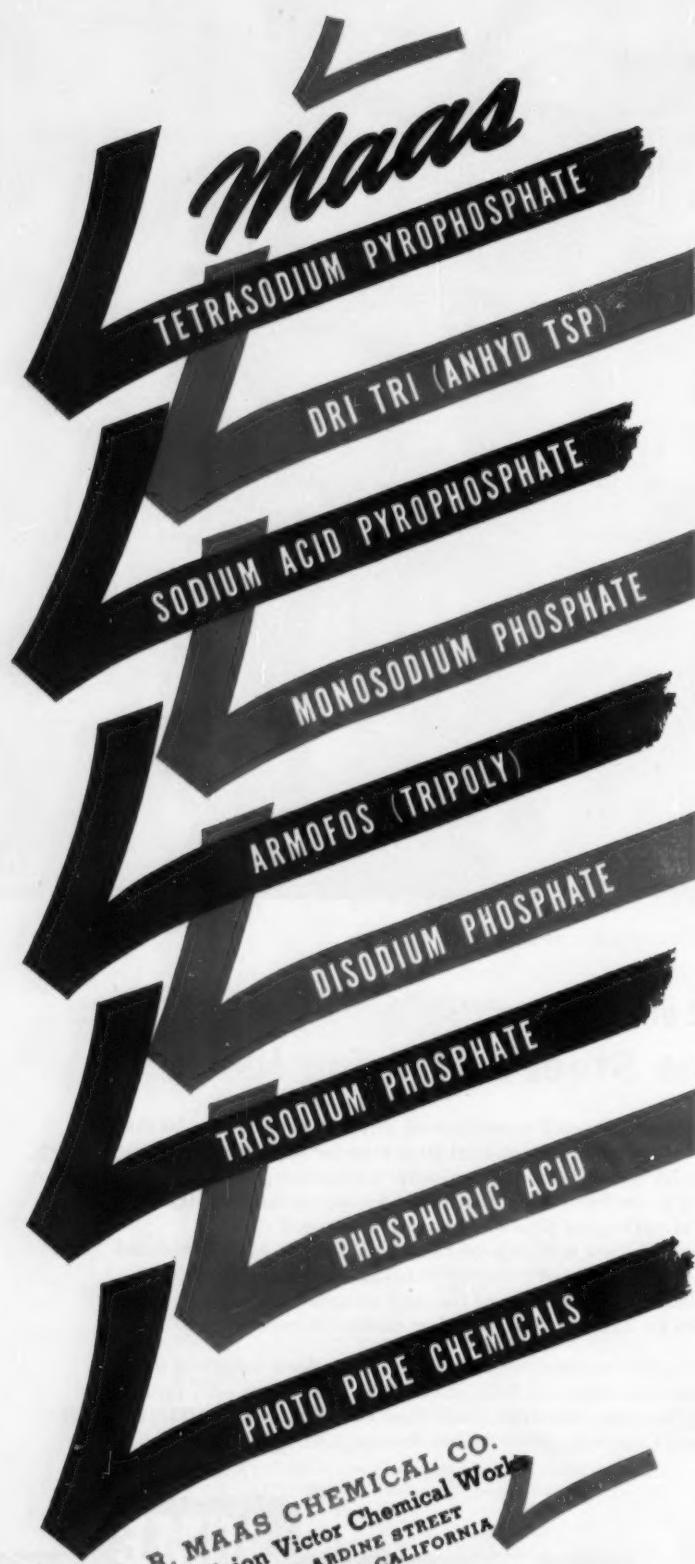
The day-in-and-day-out experience of shippers continues to be the best measure of the reliability of steel strapping for securing products safely, quickly and more economically. Orangeburg Manufacturing Company proved this with Acme Steel Strapping methods that increased the rate of packaging pipe and conduit. Idea #408 has not only meant a saving for this manufacturer, but has reduced labor costs at the site of installation because of easier handling. And, because of the security of the steel strapped packages, shipments go through undamaged to customers everywhere.

Whether you're shipping small cartons or products weighing tons, your Acme Idea Man can help you find the solution to safe, economical shipping. Ask him. Or, write Acme Steel Products Division, Dept. TV-64, Acme Steel Company, 2840 Archer Avenue, Chicago 8, Illinois.

**AIM** For Safe, Lower-Cost Shipping

ACME STEEL CO.  
CHICAGO

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STEEL**



## B & I . . . . .

would welcome a British source of butyl rubber, but the Colonial Office is not so disposed. Reason: the interests of the natural rubber industry—which would suffer by any major inroad on British rubber markets.

**Dyestuffs/India:** Britain's Imperial Chemical Industries is following in the footsteps of American Cyanamid by making a move in the direction of India's growing dyestuffs industry. Spurred by textile magnate Kasturbhai Lalbhai (who two years ago enlisted technical aid and 10% of the capital from American Cyanamid for his dyestuffs plant at Bulsar), ICI will now enter into a agreement with the same firm (Atul Products) to expand dyestuffs capacity. Final terms of the deal await ratification by the Indian government.

**Aluminum / Argentina:** Argentina, which up until now has had to depend upon imports for aluminum requirements, is planning to invest \$25 million to build an aluminum plant in the southern territory of Chubut, near Comodoro Rivadavia. Capacity: 10,000 tons of aluminum yearly—to save \$6.5 million/year in foreign exchange.

Since bauxite is unavailable in Argentina, the new industry will be fed from high-grade aluminum oxide deposits (clay) recently discovered in Neuquen. Financing will be handled through a system of taxation—to be paid for years to come by future consumers of Argentina's homemade aluminum products.

## KEY CHANGES . . .

**Robert N. Graham**, and **William F. Reich, Jr.**, to executive vice-presidents, Carbide and Carbon Chemicals Co., New York.

**Carl F. Prutton**, to vice-president and technical director, Chemical Division, Food Machinery & Chemical Corp., New York.

**Arne E. Carlson**, to manager, Agricultural Chemical Sales, Grasselli Chemicals Dept., Du Pont Co., Wilmington.

**William C. Winterhalter**, to executive vice-president and general manager, H. I. Thompson Fiber Glass Co., Los Angeles.

**J. L. Bitter**, to vice-president, Research and Development, **Gordon V. Hager**, to treasurer, and **C. Chester Bassett, Jr.**, to general sales manager, Sales Div., American Enka Corp., New York.

Plasticizer	TRIETHYL CITRATE	ACETYL TRIETHYL CITRATE	TRIBUTYL CITRATE	ACETYL TRIBUTYL CITRATE
Empirical Formula	C <sub>6</sub> H <sub>10</sub> O (COOC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	C <sub>7</sub> H <sub>12</sub> O <sub>2</sub> (COOC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	C <sub>8</sub> H <sub>14</sub> O (COOC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>	C <sub>9</sub> H <sub>16</sub> O <sub>2</sub> (COOC <sub>2</sub> H <sub>5</sub> ) <sub>2</sub>
Molecular Weight (Theoretical)	276.3	318.3	360.4	402.5

#### TYPICAL PHYSICAL PROPERTIES

Color		Hazen	10	<50	<50
Distillation Range at 1mm Hg.		Deg. C.	126-7	131-2	172-4
Refractive Index	25°C.		1.4400	1.4380	1.4408
Specific Gravity	25°C.		—	1.136	1.048
Pounds Per Gallon	25°C.	lb.	9.48	9.47	8.74
Pour Point	—	Deg. F.	—50	—45	—75
Viscosity	25°C.	Cps.	35.2	53.7	42.7
Solubility in Water	25°C.	Gm./100 cc.	6.5	0.72	—
Solubility in Oil	25°C.	Gm./100 cc.	0.8	—	0.000009
Evaporation Rate	105°C.	Gm./sq.cm./hr.	0.000676	0.000497	0.000065

#### RESIN COMPATIBILITY

Cellulose Acetate  
Cellulose Acetate-Butyrate  
Cellulose Nitrate  
Ethyl Cellulose  
Polyvinyl Chloride  
Polyvinyl Chloride-Acetate  
Polyvinyl-Vinylidene Chloride  
Polyvinyl Acetate  
Polyvinyl Butyral  
Chlorinated Rubber

C	C	C	P	P
C	C	C	P	C
C	C	C	C	C
C	C	C	C	C
C	C	C	C	C

P = Limited Compatibility    C = Compatible



## WHEN TOXICITY IS A PROBLEM A CITRATE PLASTICIZER MAY BE THE ANSWER

• Pfizer offers this group of four Citrate Plasticizers . . . each with special properties that determine its use. They are especially recommended for vinyls and cellulosics.

Studies indicate these plasticizers have an extremely low order of toxicity. This charac-

teristic suggests their use in hospital equipment, food packaging, beverage tubing and other products in which toxicity is a factor.

If you need a plasticizer for a specific application, investigate these Pfizer Citrate Esters. Send for Technical Bulletin No. 31.

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Manufacturing Chemists For Over 100 Years



# "Freon" Propellents Put

## Pressure remains constant until container is emptied

The propelling force in the vast majority of aerosol-product formulations now on the market is one of the various Du Pont "Freon"<sup>\*</sup> fluorinated hydrocarbon propellents. There are over 25 different "Freon" propellents now used in aerosol products.

"Freon" propellents provide a source of constant pressure until the entire liquid content of the container has been discharged. When the volume of liquid in the container is decreased, as in Figure 1 below, the volume of vapor space is increased. When this occurs, a small amount of the liquefied propellant vaporizes to fill the enlarged space so that the pressure inside the container remains the same.



### "Freon" propellents designed to meet specific needs

While "Freon" propellents vary in compatibility, solubility, and other qualities, their basic characteristics remain the same: all are nonflammable, non-explosive, and virtually nontoxic. The propellant may be tailored (by mixing individual "Freon" com-

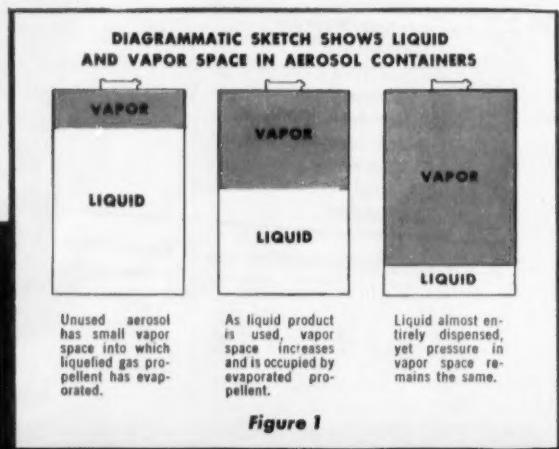


Figure 1

# the Push in Aerosols

pounds) to meet the compatibility, solubility, pressure, and other requirements of the active ingredients to produce the most satisfactory product. These formulations may contain solutions of active ingredients in oil, alcohol or other solvents dissolved in the liquid propellant.

If a liquefied gas propellant alone were present in a container, the pressure would remain exactly the same until all of the liquid had been emptied. The relative amount of liquid and vapor would make no difference in the pressure as long as there is no change in temperature.

The vapor pressure of a solution depends on the relative amounts of the different materials which make up the solution. When only this solution is discharged from the container, the relative concentration of materials in solution remains unchanged. As vapor space in the container increases, some of the liquid evaporates to fill up this vapor space.

A given volume of liquid "Freon" propellant will contain about 70 times as much material by weight as the same volume of vapor. When the vapor volume in the container is increased, such a very small amount of liquid is evaporated to occupy the new vapor space that the composition of the remaining liquid is not appreciably altered.

Because of this characteristic of "Freon" propellants, an aerosol product is dispensed at the same rate when the container is nearly empty as when it is nearly full. It is also possible to get virtually all of the product out of the container; there is no waste.

In a situation where only compressed gas is used as the propelling force, there is no reservoir of liquid, and the pressure continuously drops during discharge of the container.

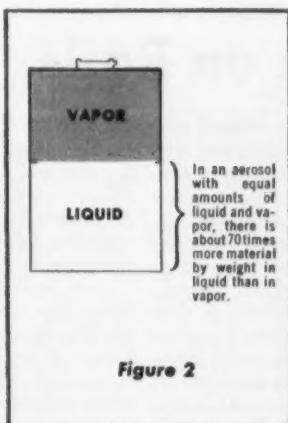


Figure 2

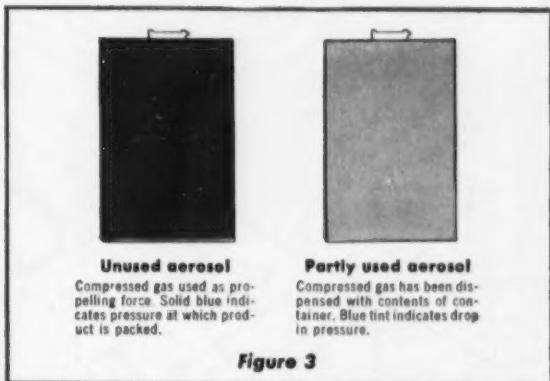


Figure 3

Du Pont "Freon" propellents are ideal for all types of aerosol formulations. These propellents are safe . . . nonflammable, nonexplosive, noncorrosive, virtually nontoxic. They are made by scientific, laboratory-controlled methods that insure their stability, uniformity and quality.

Why not investigate the possibility of marketing products of your own in aerosol form—or of developing new products in this modern package? Both Du Pont and contract loaders will work with you in developing your aerosol products, and contract loaders will package aerosols to your specifications in any quantity.

Write us for information on this fast-growing packaging field. Write also for a copy of Du Pont's latest survey of the consumer market for aerosol products. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Del.

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**F R E O N**

**SAFE PROPELLENTS**

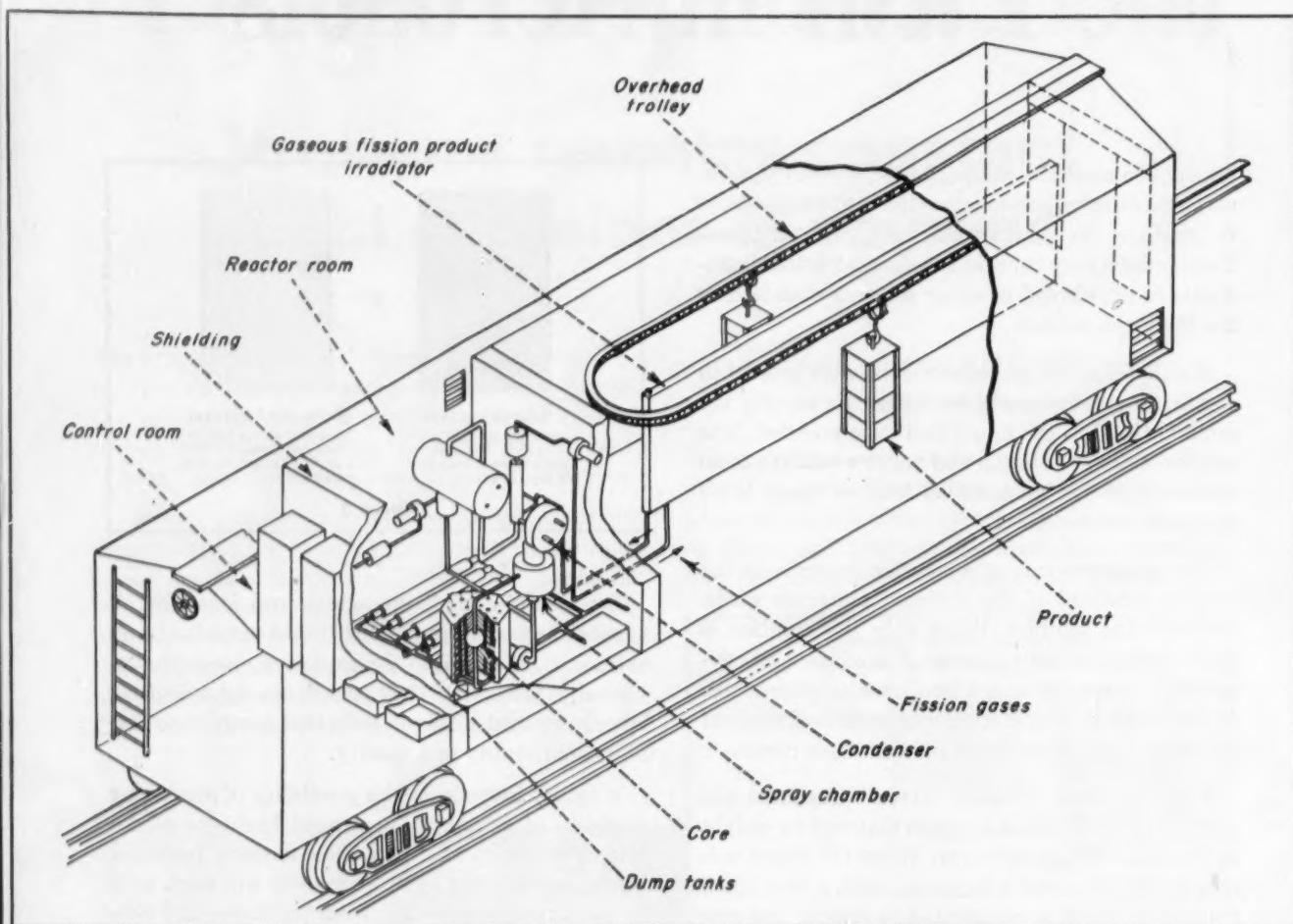
\*"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon propellents

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**BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY**

# PRODUCTION . . . . .



MOBILE REACTOR: It's moved into a tunnel next to the chemical plant.

## Plastics Tool: "Hot" Box on Rails

Although an economical, commercial nuclear reactor is still considered something for the future, plenty of engineers are already speculating on what form a practical design might take. Brookhaven National Laboratory's David Ballantine did just that at the Meeting of the Society of the Plastics Industry in Cleveland last fortnight (for other news of the meeting see p. 101). He envisioned a mobile reactor that could generate power, also serve as a source of ionization to start chemical reactions. It might even be economical, says Ballantine, to build a reactor solely for the purpose of obtaining an ionization source.

**Three Stakes:** The chemical industry has at least three reasons for its interest in atomic energy development.

- The whole field is a natural offshoot of chemical processing, and the industry is well suited to solve many of the problems encountered.

- It is also a ready customer for low-cost power that might be produced in nuclear reactors.

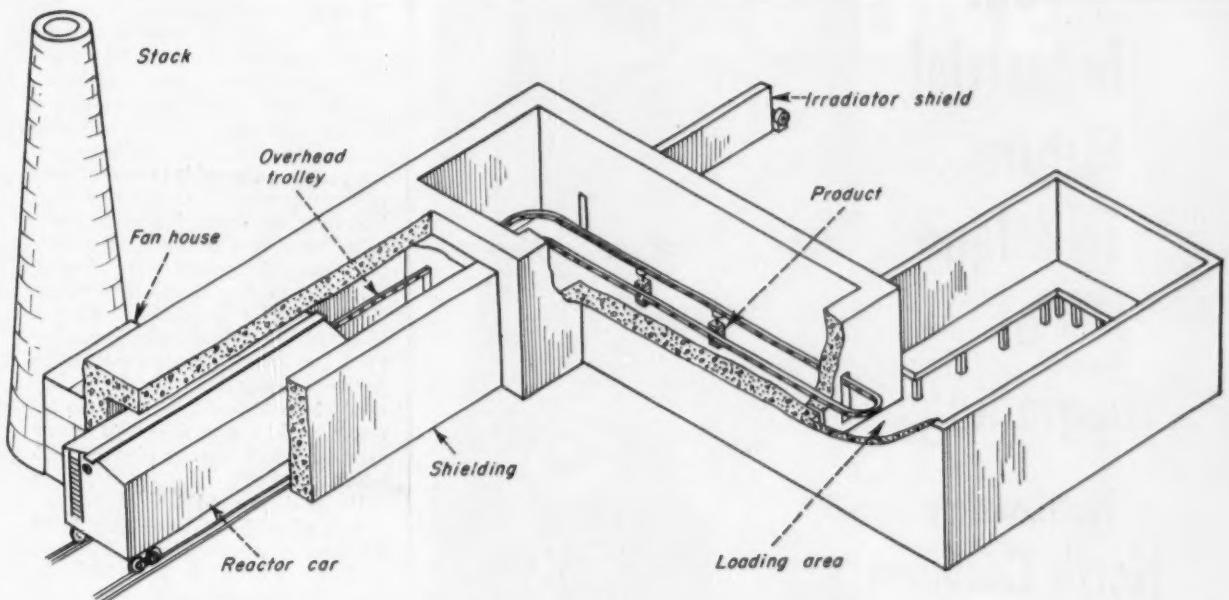
- But often overlooked, though pretty much an open secret, is this fact: the waste products from a reactor are ionization sources that could drastically alter some present concepts of chemical processes. Chemical companies participating in the atomic energy program feel that if a new type of plant results from these new concepts, they'll be in on the ground floor.

General Electric, for instance, proved that it's possible to change the characteristics of polyethylene by bombarding it with high-energy elec-

trons (*CW*, Apr. 3, p. 69). And though G. E. employs a cathode-ray machine for the job, the groundwork for the whole technique was laid by Britain's A. Charlesby who used high-energy radiation from an atomic pile for the same purpose.

But nuclear by-products can do more than alter the characteristics of plastics; they can also initiate various chemical reactions, including polymerization. Thus the plastics segment of the industry was a logical and receptive listener to Ballantine's ideas. He broke the case for ionizing radiation down into six counts:

- Polymerization can be carried out at lower temperatures. This helps to sidestep adverse thermal effects, also permits the formation of isomers that occur at low temperatures.



**BOX CAR CLOSEUP:** The material to be treated moves on overhead trolley.

- Since no catalysts or promoters are used, the product is uncontaminated.
- Solid-state polymerization is possible.

• Induction of polymerization by radiation has all the advantages of ultraviolet light induction. In addition nuclear radiation has more penetrating power.

• Because the initiation step is independent of temperature, molecular weight control over a wide range can be achieved by changing the temperature.

• Polymers can be made with characteristics different from those currently encountered, for the radiation attacks the polymer molecules, causes branching, cross-linking and altered molecular weight distribution.

**Three Possibilities:** The form in which radioactive products will be used, says Ballantine, depends chiefly on the type of reactor from which they are removed. He advances three possible means by which they might be put to work in chemical plants.

• Utilize fission products from the fuel separation units of present model reactors. He visualizes their being placed on the shell side of a calendria, shielded by 30 to 100 tons of dense material. The whole assembly is mounted on a railroad flatcar, wheeled into a chemical plant and the lines

hooked up. When the radiation falls below the desired level, it is returned for replenishment.

• Another possibility: utilize the entire fuel assembly of a reactor like the MTR, operating in Idaho. This would result in high radiation yields but would mean that the chemical plant must be located adjacent to the reactor site.

• Probably the most tantalizing suggestion put forth by Ballantine: the mobile reactor (*see above*) for producing power and serving as an ionization source. He cites Bernard Manowitz, his colleague at Brookhaven, who reasons along these lines: When fission occurs, approximately 80% of the released energy appears immediately as heat; the beta and gamma energies amount to about 5% of the total. And though this 5% is distributed among 20 products, 20% of it is in the gaseous fission products, krypton and xenon. If the reactor fuel is a liquid from which these could be continuously stripped, transferred and trapped in a gamma irradiator within one minute, then 1% of the total energy of fission would be available for irradiation.

This principle, Ballantine feels, could be embodied in a reactor and gamma irradiator that could be mounted in a standard railroad box car and moved into a chemical plant.



**BROOKHAVEN'S BALLANTINE:** Three ways to utilize fission products.

As he sees it, the reactor takes up about a 10-ft. section of the car; the rest, separated by a slab, houses the unit for trapping the gases.

The reactor is then moved into a tunnel whose walls provide the necessary secondary shielding. The beta-gamma shield for the irradiator, consisting of two lead walls on either side of the unit is removed. The box car bayonets into a monorail system on

# Your Industrial Future... in a land of beginnings

## Northeastern North Carolina



Here, on Roanoke Island, the *first* English Settlement was set up in 1585.

Here, was born Virginia Dare—the *first* white child in the New World.

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Here, in a Land of Beginnings—at "THE TOP OF THE SOUTH"—can be *your* industrial future.

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IN NORTHEASTERN NORTH CAROLINA, at the "TOP OF THE SOUTH", the people are really friendly to new and expanded industry for, with traditions going back to Colonial days, they know that more invested capital means greater opportunities for workers who realize what free American enterprise can do.

Our Area Development Department can help you find the location you want for your industry. We have the information on sites, natural advantages and technical details. A letter, postal card or telephone call will start this confidential service to you.



## PRODUCTION . . .

which the material to be irradiated passes through a labyrinth entrance into and out of the irradiation chamber. "With a little imagination," says Ballantine, "this scheme could be adapted to fit a number of chemical processes."

**Down to Costs:** Again citing Manowitz, Ballantine went into the question of economics for a reactor whose sole purpose is to serve as an ionization source. It's not possible to project costs with any degree of accuracy at present. Manowitz, however, has made some calculations that measure, in a very broad way, the practicability of using ionization to start chemical reactions. He starts off by assuming that it's possible to build a small-scale reactor for \$500/kw. Ignoring operating costs, he further assumes that since the reactor would be a high-risk venture, the investor would expect to get his investment back in five years plus a 33½% return.

Under those conditions:

- A plant for polymerizing 2,000 lbs./hour of styrene requires a 50-kw. irradiator (assuming it's 25% efficient). Further making the admittedly optimistic assumption that the value of the irradiation treatment is 1¢/lb., you end up with an allowable investment of \$700,000. Since the irradiator salvages only 1% of the fission energy, you'd have to build a 5,000 kw. reactor for \$700,000, or \$140/kw. Conclusion: polystyrene is a bad bet for a strictly ionizing irradiator.

- A plant polymerizing 2,000 lbs./hour of methyl methacrylate requires only a 6-kw. irradiator. If the treatment is worth 1¢/lb., the allowable investment, here too, is \$700,000, or \$1,100/kw. Conclusion: polymethyl methacrylate is a good bet.

- A plant for making 2,000 lbs./hr. of polyethylene calls for a 100-kw. irradiator. If the treatment is worth 30¢/lb., the allowable investment is \$5 million, or \$500/kw. Conclusion: polyethylene is slightly better than an even bet.

**Climbing the Mountain:** Ballantine notes the fact that nuclear irradiators will have to compete in some areas with accelerators and x-ray machines. And the machines are safer, cheaper (by a factor of 10) and can do the job in less time. But they are weakly penetrating and are limited to treatment of thin sheets.

And in any case, Ballantine observes that "there's a mountain of chemical research that must be overtaken before this choice becomes a matter of significance." But chemical engineers have climbed mountains of research before—and they can doubtless do it again.

### AREA DEVELOPMENT DEPARTMENT

## VIRGINIA ELECTRIC AND POWER COMPANY

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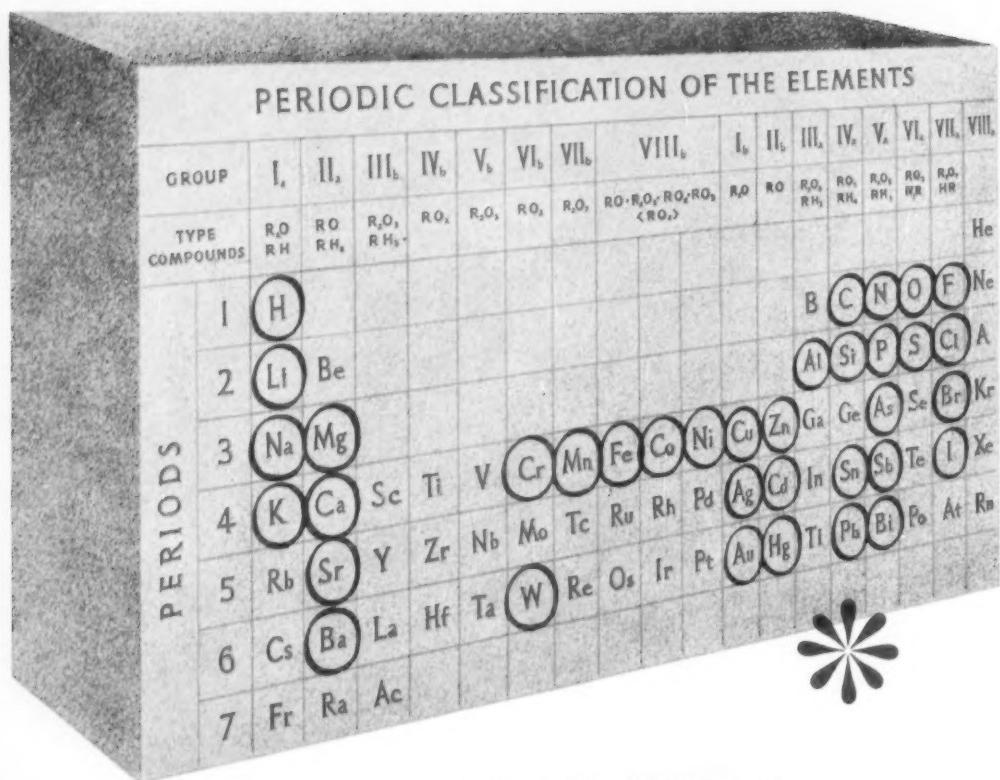
WHERE QUALITY BEGINS

PERIODIC CLASSIFICATION OF THE ELEMENTS																					
GROUP	I <sub>a</sub>	II <sub>a</sub>	III <sub>b</sub>	IV <sub>b</sub>	V <sub>b</sub>	VI <sub>b</sub>	VII <sub>b</sub>	VIII <sub>b</sub>	I <sub>b</sub>	II <sub>b</sub>	III <sub>a</sub>	IV <sub>a</sub>	V <sub>a</sub>	VI <sub>a</sub>	VII <sub>a</sub>	VIII <sub>a</sub>					
TYPE COMPOUNDS	R <sub>2</sub> RH	RO RH <sub>2</sub>	R <sub>2</sub> O <sub>3</sub> RH <sub>3</sub>	RO <sub>2</sub>	R <sub>2</sub> O <sub>5</sub>	RO <sub>3</sub>	R <sub>2</sub> O <sub>7</sub>	RO·R <sub>2</sub> O <sub>3</sub> , RO <sub>2</sub> ·RO <sub>3</sub> (RO <sub>5</sub> )	RO	RO	RO <sub>2</sub> RH <sub>2</sub>	RO <sub>3</sub> RH <sub>3</sub>	RO <sub>5</sub> RH <sub>5</sub>	RO <sub>7</sub> RH <sub>7</sub>	RO <sub>8</sub> RH <sub>8</sub>	RO <sub>9</sub> RH <sub>9</sub>	RO <sub>10</sub> RH <sub>10</sub>				
1	H																He				
2	Li	Be														B	C	N	O	F	N <sub>e</sub>
3	Na	Mg														Al	Si	P	S	Cl	A
4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr			
5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Tl	I	Xe			
6	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn			
7	Fr	Ra	Ac																		



STORY





## ...THE FOUNDATION of the chemical process industries

The periodic table represents one of the great laws of chemistry.

To a scientist it indicates the characteristics and fundamental behavior of the elements and their compounds. *But there's a catch: to run true to form the elements must be pure.* The same is true with chemicals in the process industries.

The best engineered process, the most skilled technicians, the best available equipment—these will not provide a product that meets rigid specifications unless starting materials and intermediates, particularly chemicals, are exactly right. Chemicals are the foundation of the chemical process industries.

That's why a logical place to look for trouble—or for improvement—in a process is in the chemicals used. Start with chemicals that you know are precision manufactured to exact specifications—and you'll be surprised how much more smoothly the process goes, how greatly *improved* and *dependable* is the end result, and how *economical*.

\* \* \* Those elements circled are components of the many chemical compounds precision manufactured by Mallinckrodt.

# More than 200 industries depend upon MALLINCKRODT as a source of chemicals

*Dependable chemicals — with continuing assurance that they will be available when needed — have proved to be an important cornerstone in profitable, trouble-free processing of thousands of products.*

Research, production, development and purchasing people in more than 200 industries talk to Mallinckrodt when they need chemicals for new products . . . when they need dependable chemicals for existing processes . . . when the physical form of chemicals is a problem . . . when it is important to improve product quality . . . when a predetermined degree of chemical purity is necessary . . . when consistent chemical properties are required for smooth production. *For these needs they turn to Mallinckrodt.*

Pharmaceutical manufacturers, television tube and fluorescent light manufacturers, food processors, battery producers, paint and varnish manufacturers, paper mills, grease manufacturers, soft drink manufacturers, photographic and graphic arts industries, cosmetic makers — these are just a few of the many industries that take advantage of the skills which Mallinckrodt has developed in

its eighty-seven years of effectively serving the process industries.

## OVER 1500 CHEMICALS in quantities up to millions of pounds

Your requirements for dependable chemicals may vary from a few tons to *carload lots*. Whatever quantity you need, Mallinckrodt's years of experience, highly skilled technicians and extensive production facilities are always at your service.

Time after time, industry has come to Mallinckrodt to find the answer to a basic problem in the supply of chemicals to predetermined specifications — first in experimental amounts, later in commercial quantities.

*It is good to know that you can depend upon one source for many of your chemical needs — that Mallinckrodt will meet your requirements — for purity, physical form, uniformity and service. Why not take advantage of Mallinckrodt's substantial accumulation of technical information and specialized skills?*

Mallinckrodt has offices in most important cities. Will you call or write us?



*The experienced staff, modern laboratory facilities and rigid control of commercial production at Mallinckrodt are extremely important assets to the process industries — whether their needs are for a few tons or for carload lots.*

WHERE QUALITY BEGINS



STORY

# Here is how Mallinckrodt has provided industry with the right chemicals at the right time



## Television needed pure chemicals

A few parts per million of a single element (iron for example) may reduce the light output or alter the color of television phosphors. Successful phosphor manufacture demands the ultimate in perfection of starting materials. Mallinckrodt has played an important part in providing precision manufactured chemicals for television phosphors . . . resulting in clearer, brighter pictures for the enjoyment of millions of viewers.

## Meeting Pharmaceutical requirements

Mallinckrodt manufactures products to particular physical specifications, such as bulk, particle size and distribution, crystal form, degree of hydration, rate of solution and suspendability as well as to particular purity standards. In many cases undesirable impurities are controlled almost to the limits of detection. Often the performance of a new chemical form, precision manufactured by Mallinckrodt, has been the cornerstone of a new pharmaceutical product.



## Mallinckrodt AR's\* Standards of Comparison

Only the purest reagents can be used in analyzing the quality of other chemicals. On these standard chemicals, and the tests in which they are used, rests the decision to approve or reject a finished batch, accept or reject a supply of raw materials. These reagents, therefore, must be of the highest purity. Mallinckrodt has developed more than 400 analytical reagent chemicals. Mallinckrodt AR's frequently surpass recognized purity standards.

\*Trade Mark

## What to do about Turf Diseases

For positive prevention and control of turf diseases, fungicides must be long-lasting, economical and extremely effective in destroying the fungi causing the diseases. Mercury and cadmium compounds are effective against a broad spectrum of fungi. For example, Mallinckrodt's Caloclor® or Calocure® are recognized as most effective fungicides for the prevention and control of brown patch and snow molds — Cadminate® for dollar spot, red thread (pink patch) and copper spot. For many years the effectiveness of these fungicides has been demonstrated on golf courses. Moreover, they have received superior ratings each year when tested in the National Turf Fungicide Trials.

9

## Fluorescent Lamps that last—and last—and last

Relatively short lamp life and rapid decline in efficiency were among the problems faced by the fluorescent lamp industry in its very early days. Great advances were made in the development of silicate and tungstate phosphors, but the industry wanted to change to halophosphate phosphors. The pure calcium phosphate needed to make them, however, was not commercially available. Mallinckrodt went to work and successful laboratory samples were quickly produced. In a remarkably short time, tons of calcium phosphate were being delivered to the industry. Today, lamp life of more than 5000 hours at high efficiency is commonplace.



## To increase Petroleum Production



Acid treatment of oil wells in limestone formations has been successful for many years — but the industry wanted to "acidize" only the oil-bearing strata that needed it. To make selective treatment possible, Mallinckrodt developed Cryogels® — metallic soaps which must convert kerosene to a thick jelly in a few minutes, stay thick for an hour or two, then spontaneously "break back" to a thin fluid. Pumped into the well, these jells temporarily seal off oil-bearing strata which do not need acidizing and confine the acid action to the less porous strata. Mallinckrodt Cryogels® are an example of products which meet tough performance specifications and help the petroleum industry to produce more oil.



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SNOOK LECTURING: Taking the mystery out.

## Upgrading an Industry

Seventeen corrosion engineers, mostly duffers, were a sight to see on the golf links in the Pennsylvania hills last fortnight. But sandwiched between the afternoons on the greens were some meaty sessions on the application of corrosion-resistant materials in chemical plants. For the engineers were students. The faculty: members of Atlas Mineral Products Corp. (Mertztown, Pa.), who were out to revamp some ideas on corrosion-resistant products.

The idea that Atlas had in giving the course was, as Vice-President Joseph Snook put it, "to take some of the mystery out of the application of corrosion-resistant products." Says he: "When you buy a new car and crash it into a concrete wall, you don't go to the dealer and tell him the car is no good unless there was some sort of faulty mechanism. We'd like the same treatment with our products. If something goes amiss, first ask yourself what you did wrong."

To put the message across, Atlas invited the 17 engineers to spend three days in the lush resort atmosphere of Galen Hall (outside Wernesville, Pa.). The course was arranged so that the afternoons of the first two days were free for golf or other forms of relaxation; classes were held in the morning and evening. The last day was devoted entirely to lectures. In the four sessions, the firm's experts talked on:

- Plastic fundamentals. They went

into the history, fundamentals and physical properties of plastics. And in order to avoid the hazards of a strictly "how-to-do-it" course, they tried to show some of the relationships between chemical resistance and molecular structure.

- Applications. This included considerations of protective coatings, organic linings, chemical-resistant cements and miscellaneous products.

- Plastic structures. In the third session, the Atlas faculty held forth on reinforced plastics, thermoplastic structures and plastic pipe.

- Plastic engineering and design. In the morning of the fourth day, Engineering Manager George Gabriel went into the do's and don'ts of design of supporting structures, chemical resistance of masonry construction, specific applications of plastic materials.

Winding up the course, Snook spoke on the products of Atlas and its competitors. Up to that time, tradenames and brandnames were studiously avoided. Snook, however, gave to each of the guests a mimeographed sheet containing the products of Atlas as well as its principal competitors.\*

**Moving It Around:** The idea for the corrosion course was hatched during a conversation Snook held with the

\* Which include Ceilcote Co., Electro-Chem. Supply & Engineering, Maurice A. Knight, Nikem Products Co., Pennsylvania Salt, Sauereisen and U.S. Stoneware.



For larger-than-laboratory amounts

of a

Rare organic

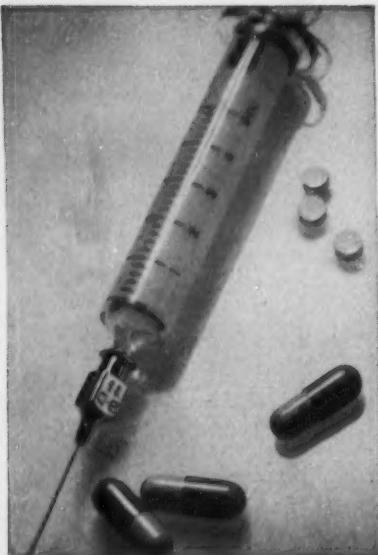
● Better ask Eastman to make it for you!

Skilled professional personnel, with their wide experience in producing over 3500 Eastman Organic Chemicals, will be glad to help you. And our great variety of equipment for all types of organic reactions is at your service for bulk production.

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"wonder drugs"

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It can be handled readily with a knife, will not gouge . . . gives a more stable cake, will not bleed . . . gives longer life to the precoat . . . is chemically inert, easily washable . . . can be burned to recover any valuable solids remaining.

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## PRODUCTION . . .

chief engineer of American Smelting & Refining in Denver. Having recently hired a corrosion engineer, the man asked Snook if he could send him to the Atlas plant to absorb some of the firm's ideas on corrosion prevention. Snook passed the suggestion along to President Raymond Seymour. Almost simultaneously, Seymour and Snook hit upon the idea of formalizing the suggestion into a course.

The first two sessions, held in the Atlas plant, were spread out over a week. But Seymour and Snook agree that the last one, at the resort, was far more successful. Out-of-pocket expenses for the three days amounted to roughly \$3,000. The time spent by the staff in preparing and delivering

the course is naturally impossible to measure, but undoubtedly is equivalent to a much bigger sum.

Atlas is well pleased with the results of its course, plans to move it around the country, probably on a twice-a-year basis. Seymour says he feels the course is helping to "upgrade our whole industry." But there is more than altruism involved, for the firm hopes to get back in goodwill the money spent.

The engineers who attended were, for their part, just as pleased. There was entirely too much material covered to be absorbed by anyone. But Atlas passed out copies of the lectures, which it expects will serve as the basis for a book to be published soon.

## The Accent's on Youth

IN MANY WAYS, Atlas Minerals is a unique member of the process industries. Organized in 1892, its first product was a bicycle pedal. It wasn't until approximately 1930, in fact, that it became interested in making corrosion-resistant materials.

But probably the most unusual feature of the company, the one that most often surprises visitors to the plant, is the youth of its key personnel. Heading up the whole structure is George Wirtz, son of the founder, Maximilian Wirtz. George now serves as chairman of the board, but, at 59, takes little part in the active management of the company. That chore falls on the shoulders of President Raymond Seymour, who is an aged 43. The vice-president is Joseph Snook, a mellow 37. The remaining key employees include Robert Steiner, research director (36), George Gabriel, engineering manager (33), Earl Erich, head of the Thermoplastic Structures Division (37), Gerald Gilbert, sales coordinator (32). It figures to an average age of 36 for the top six men.

This accent on youth came into being as the result of a major reshuffling of management in 1948. Faced at that time with the alternative of folding up or reorganizing, Wirtz called in Seymour—who had previously worked for the company—as executive vice-president. Seymour and Snook surrounded themselves with young men, feel they have the solid nucleus necessary for a growing, aggressive firm.

They have attempted to realign the firm around a basic policy of sound engineering and research. The total working force of 185, for instance, numbers 24 graduate chemists or engineers.

And their record so far has proved they're on the right track. The firm is small by many standards, grossed only \$3.5 million last year. But that represents a doubling in the past 3½ years. If Seymour and Snook have their way, it will double again over the next 5 years.

Presently the firm's bread and butter items are Alkor furane cement, Vitrobond silica cement, Neobon neoprene membrane dispersion and Atlastavon vinyl membrane sheet. But it also rates itself as one of the leading factors in the installation of rigid polyvinyl chloride equipment. It has had a PVC pipe on the market for some time, has installed many PVC structures. It expects in the not-too-distant future to market a complete line of PVC valves and fittings.

The whole firm is a closely knit organization with an *esprit de corps* fostered by Seymour. He has, for instance, inaugurated a golfing session on Monday afternoons. Any of the office or technical staff can quit work at 3 o'clock (instead of 5) to play. Seymour and Snook participate whenever possible. Says Seymour: "We're proud of the spirit of these youngsters. They do things of their own volition that I could never in all fairness ask them to do and they get them done."



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## EQUIPMENT . . .

**Mechanical Slave:** Central Research Laboratories, Inc. (Red Wing, Minn.) will introduce its new Model 8 master-slave manipulator next week at the Nuclear Engineering Congress in Ann Arbor (Mich.). Designed for handling radioactive objects, the unit permits operators outside a nuclear barrier to manipulate slave "hands" within the "hot" room. An electrically driven canting mechanism varies the angular position of the slave end independently of the master end, enables operators to bring objects up to the viewing window without having to back away while moving the master control arms.

**Pressure Switch:** Barksdale Valves (Los Angeles) is now marketing its new Model 532 Meletron pressure switch. The unit incorporates two parallel bourdon-tube sensing elements to detect pressure differences. Placed in a pressure circuit, the switch permits opening or closing of the circuit on increasing or decreasing pressure differences from 15 to 10,000 psi.

**In Brief:** Statham Laboratories, Inc. (Los Angeles) has published a 12-page bulletin, No. PT-1, that describes instruments for the measurement of gauge, differential and absolute pressures. The bulletin includes drawings, specifications and selection tables for eight designs of units for pressure measurement from 0-0.05 psi. to 0-10,000 psi.

- Wagner Brothers, Inc. (Detroit) illustrates its line of electroplating rectifiers ranging from 5 to 50,000 amp. in its booklet B 20-54. Standard and special designs as well as regulators and controls are also covered.

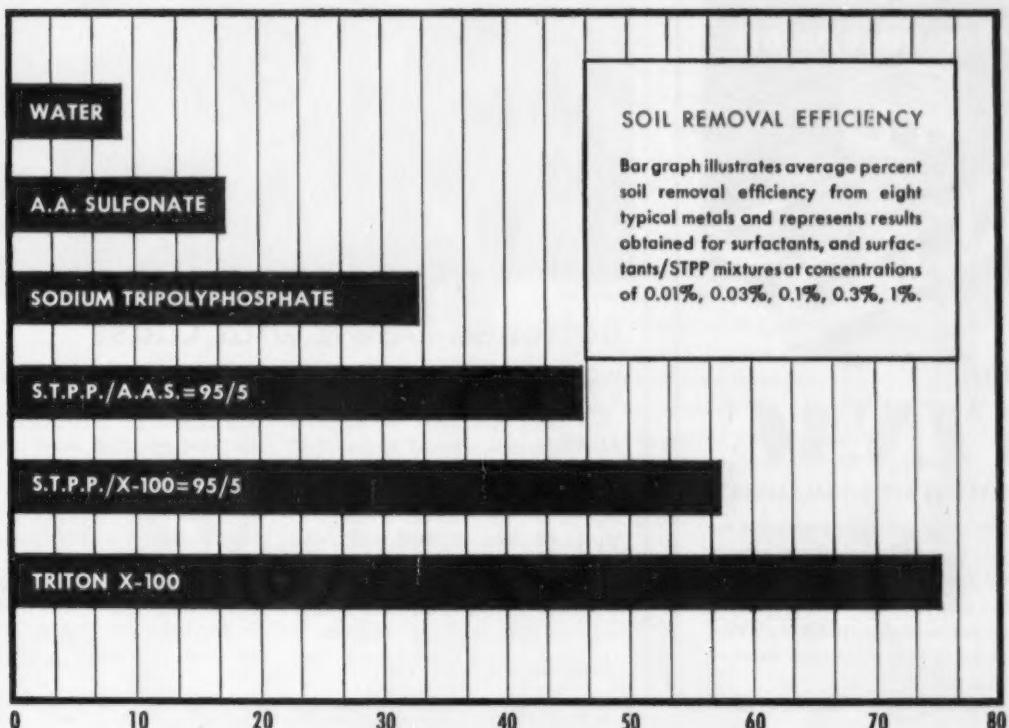
- Manufacturing Chemists' Assn., Inc. (Washington, D.C.) recently completed its "Air Pollution Abatement Manual," is offering it at \$6. Individual chapters of the 13-chapter manual are also available separately at prices ranging from 15 to 75¢.

- Ohio Injector Co. (Wadsworth, O.) lists descriptions of its numerous valves together with applications and comparative tables (with other valve manufacturers listed alphabetically) in its revised Valve Comparison Chart. The 20-page pamphlet is designed to help users quickly locate references to particular valves.

- Eclipse Fuel Engineering Co. (Rockford, Ill.) has just released two publications on controllers and mixers. Bulletin M lists the firm's line of valves for combustion control; Bulletin L covers the company's models of air/gas proportional mixers.

# ALUMINUM, ZINC, IRON, STEEL, BRASS, COPPER AND SILVER...

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Clip this information for your reference files. If you would like technical assistance on the uses of TRITON surfactants write us.

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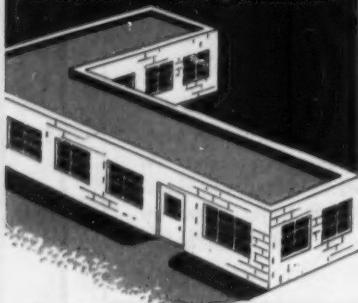
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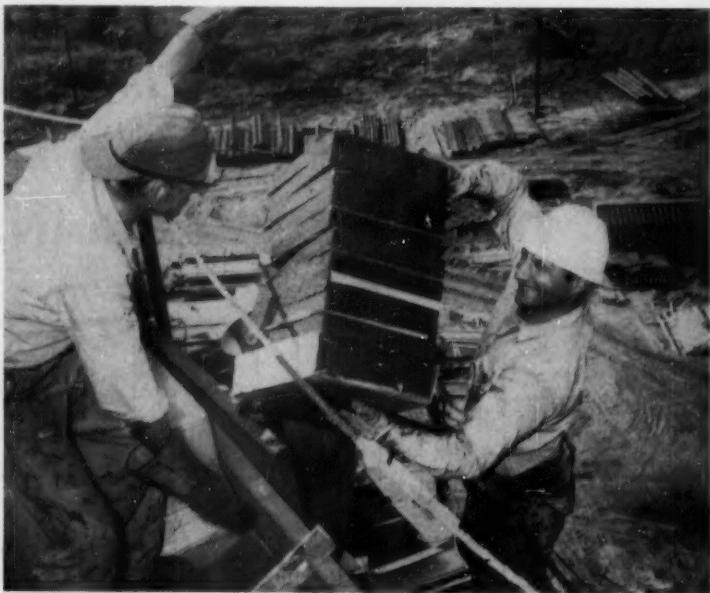


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## PRODUCTION . . . . .



### Battened Down with Glass

WORKMEN at Schenectady (N.Y.) lay on the last of the cellular glass block insulation for General Electric's new atomic engine test center. The 5½-million-cu.-ft. sphere needed more than 138,000 sq. ft. of 2x12x18-in. Foamglas® blocks to cover its steel walls with an airtight shell.

Big enough to house an 18-story building, the webbed-steel sphere requires insulation to maintain a

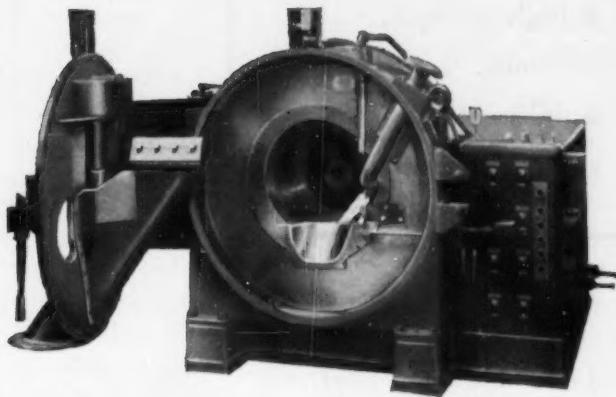
\* Produced by Pittsburgh Corning Corp. (Pittsburgh, Pa.).

constant barometric inside pressure. A sudden change in interior pressure caused by fluctuating outdoor temperature could exert hazardous stresses on the giant shell.

Often in positions that would press the agility of ceiling-walking flies, workmen scaled special scaffolding (*top*) supported by permanent steel wall lugs, impaled the lightweight glass blocks (*bottom*) on welded steel wall pins to give the shell its constant-pressure skin.



# BAKER PERKINS EQUIPMENT FOR EFFICIENT CENTRIFUGATION

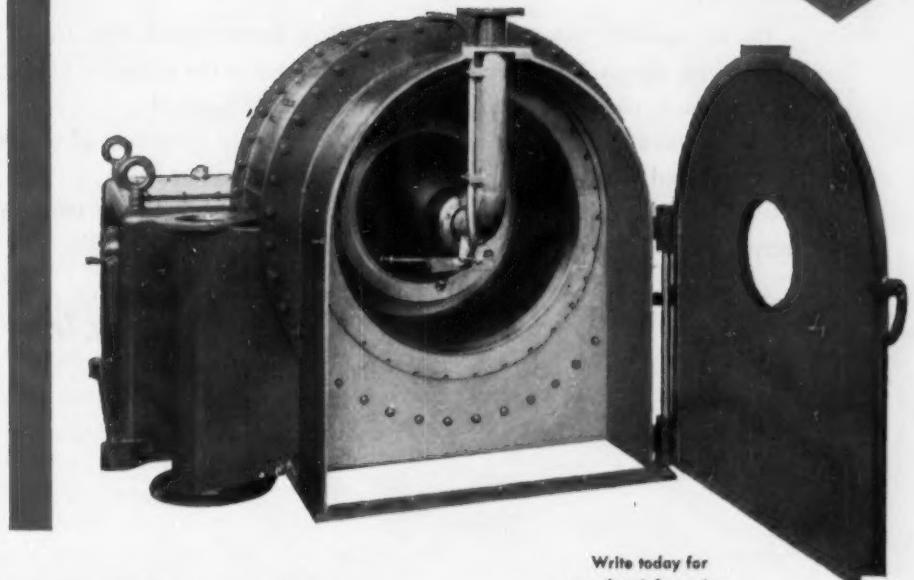


Above: Type HS Universal Filtering Centrifugal for centrifugation of a wide range of filterable solid-liquid slurries.

Right: Type S Continuous Centrifugal for centrifugation of a wide range of relatively free-draining crystalline, granular and fibrous materials.

B-P Type HS Universal Filtering Centrifugal: Fully automatic, requires no operator attention, but can be equipped with manual controls. Simple, trouble-free cycle controller handles complicated centrifugation cycles easily — compensates for process variables. Easy change to almost any filter media keeps maintenance costs low. Constant speed drum rotation reduces power requirements. In capacities from laboratory sizes to 16,000 lbs. per hour.

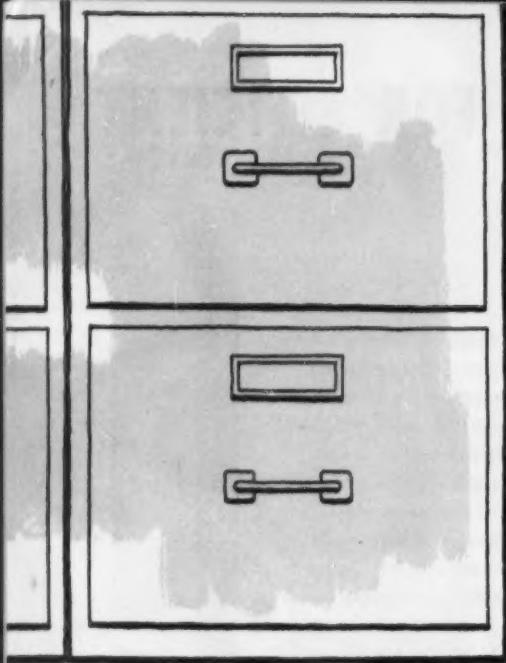
B-P Type S Continuous Centrifugal: Continuous operation requires no timing or cycle controllers. No scrapers, baffles, rakes or plows to break down delicate crystals. Constant speed drum rotation keeps power requirements low. Rugged construction insures long service with very little maintenance. In capacities from laboratory sizes to 48,000 lbs. per hour.



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On the opposite page you will find a list of licensed producers. In the United States, The Carpenter Steel Company is the exclusive producer of bar, sheet, plate, strip and tubing. Atlas Steels Limited produces sheet and bar in Canada. There are twenty producers of castings in the United States and Canada. We feel that this is an outstanding group of companies, any of whom can ably fulfill your requirements for the items they produce.

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The Carpenter Steel Company Reading, Pa. <sup>†</sup> and Union, N. J.*	Carpenter Stainless No. 20 and No. 20-Cb.	†Bar, Strip, Wire *Tubing, Sheet, Plate
The Cooper Alloy Foundry Company Hillside, New Jersey	Cooper Alloy FA-20	Castings and for own products
Crane Co. Chicago, Ill.	Craneloy-20	For own products
The Duriron Company, Inc. Dayton, Ohio	Durimet 20	Castings and for own products
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General Alloys Company Boston, Mass.	Q-85	Castings
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Michigan Steel Casting Co. Detroit, Michigan	Misco-20	Castings
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The Ohio Steel Foundry Company Springfield, Ohio	Fahrite C-20	Castings
Ross-Meehan Foundries Chattanooga, Tenn.	R-M 20	Castings
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Sivyer Steel Casting Company Milwaukee, Wisconsin	Sivyer	Castings
Stainless Foundry & Engineering Co. Milwaukee, Wisconsin	S-20	Castings
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Waukesha Foundry Company Waukesha, Wisconsin	Waukesha 20	Castings
Welland Electric Steel Foundry Ltd. Welland, Ontario, Canada	Welmet 20	Castings

*target*

## Pure Enzymes at a Price

Perhaps nowhere in the chemical industry is opportunity's knock more clearly audible than in the field of enzyme technology, where it beckons the skillful scientist possessing a well-sharpened commercial instinct.

His task: to develop an economical method of preparing reasonably pure quantities of cellulase and hemicellulase—the cellulose-hydrolyzing enzymes. His waiting reward: a market that is at once fallow, diversified and easy to cultivate.

Because of the diversity of the latent demand, an aggregate dollar value is impossible to gauge.

But in the pulp and paper industry, for one, the market potential is sizable enough to have sparked the interest of an industrial enzyme producer (Rohm & Haas) among others. The idea, very simply, is to use the enzymes to hydrolyze certain cellulosic components (e.g., hemicelluloses) of paper stock, thereby improve its quality. One early result of research along this line is U. S. Patent 2,280,307, assigned to Rohm & Haas, describing the enzymatic treatment of wood pulp.

In the forefront of such enzyme-harnessing efforts is John W. Bolton & Sons, Inc. (Lawrence, Mass.), manufacturer of papermaking machinery. Working in conjunction with a client, Bolton researchers are striving to develop techniques of utilizing the cellulases in the preparation of vegetable matter for papermaking. Commercialization of the method, on even a moderate scale, will call for a reliable source of substantial lots of the enzyme.

But right now, commercial production of cellulases is virtually nonexistent. About the only product that comes anywhere near filling the bill is Rohm & Haas' Enzyme 79. In addition to cellulase and hemicellulase, however, this preparation contains such other enzymes as maltase, gumase, cellobiase and pentosanase. Moreover, it's produced on a custom basis, which means that commercial quantities are not continually available.

In textile manufacture, too, cellulases are promising for their ability

to increase cellulose fibers' absorbency without greatly decreasing tensile strength. This feat could prove highly useful in dyeing, flameproofing and other fiber treatments. In a similar vein, a surgical dressing manufacturer is highly desirous of boosting the absorbency of cotton gauze with enzymes.

They might further be used for the predigestion of cattle feed and the conversion of wood and agricultural wastes to glucose.

A highly tantalizing specialty use: chemical potato peeling by means

The researchers' job is to: (1) find a productive source and an optimum substrate; (2) develop a method of extracting, separating and concentrating the enzymes without denaturing them; and if he's interested in a particular use (3) determine the conditions (temperature, pH) and activators or inhibitors required by the enzyme for optimum activity.

It's not entirely a pioneering task. All the highly refined techniques of enzyme science are freely available. And anyone tack-



PULP MAKING: For the skillful scientist, an audible knock.

of cellulases. Since the peel is composed of cellulose-type material and the potato itself is chiefly starch, there is little danger of the highly selective enzyme chewing up more than the outer covering.

Moreover, since relatively pure enzymes are exceedingly active, a pinch of cellulase in a bucket of water might painlessly peel pounds of tubers.

The development of this, and virtually all potentially remunerative cellulase applications, is stymied by severe but not insoluble production drawbacks.

Briefly, here's the problem. Exclusively natural products, the cellulases are found in seedlings, snails, bacteria, fungi and termites. Although relatively widely distributed, they are all slow-acting as found in nature, and usually mixed with a number of other enzymes.

ling the job afresh can draw to some extent on the experience of a wide circle of biochemists who have more than a nodding acquaintance with the cellulases; any one who is experimenting with the cellulases today is more than likely growing his own.

Among the most successful of these is National Research Council of Canada's (Ottawa) D. R. Whitaker. Employing the mold *Myrothecium verrucaria*, a cotton linter substrate (grade 27, Hercules Powder Co.), a variegated culture medium of inorganic salts, and a benzene-alcohol extraction technique, Whitaker has succeeded in obtaining extremely pure cellulases.

Purely a laboratory procedure, Whitaker's work is of prime significance, could serve as a jumping-off point for a more practical, industrial effort.

# Coumarone



# Petroleum and Resins

P 48

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# RESEARCH . . .

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WAKSMAN: After a decade of streptomycin, emphasis on fundamentals.

## Monument to Microcosm

Resplendent in the sunshine of a bright spring afternoon, the gleaming new Rutgers Institute of Microbiology played host to almost 1,000 well-wishers at its formal dedication last week. Erected at a cost of \$3.5 million, the imposing research center is a tribute to the life work of its illustrious director.

He is vigorous, 65-year-old Selman Waksman, whose name has come to be synonymous with the orderly scientific process of antibiotic discovery and development. Financed from Rutgers University's share (over \$4 million) of the royalties from streptomycin, uncovered ten years ago in Waksman's laboratory, the institute is a unique American enterprise and the second institution in the world (its predecessor: the Pasteur Institute in Paris) to be devoted exclusively to microbiology.

As such it will be concerned with the entire spectrum of microscopic life, from viruses to protozoa. The emphasis will, of course, be on fundamentals. It's the conviction of Waksman and his staff that the empirical approach has taken microbiology as far as it is able; henceforth the great rewards of drugs, antibiotics, industrial fermentation processes, etc., will spring from deeper exploration of fundamental knowledge.

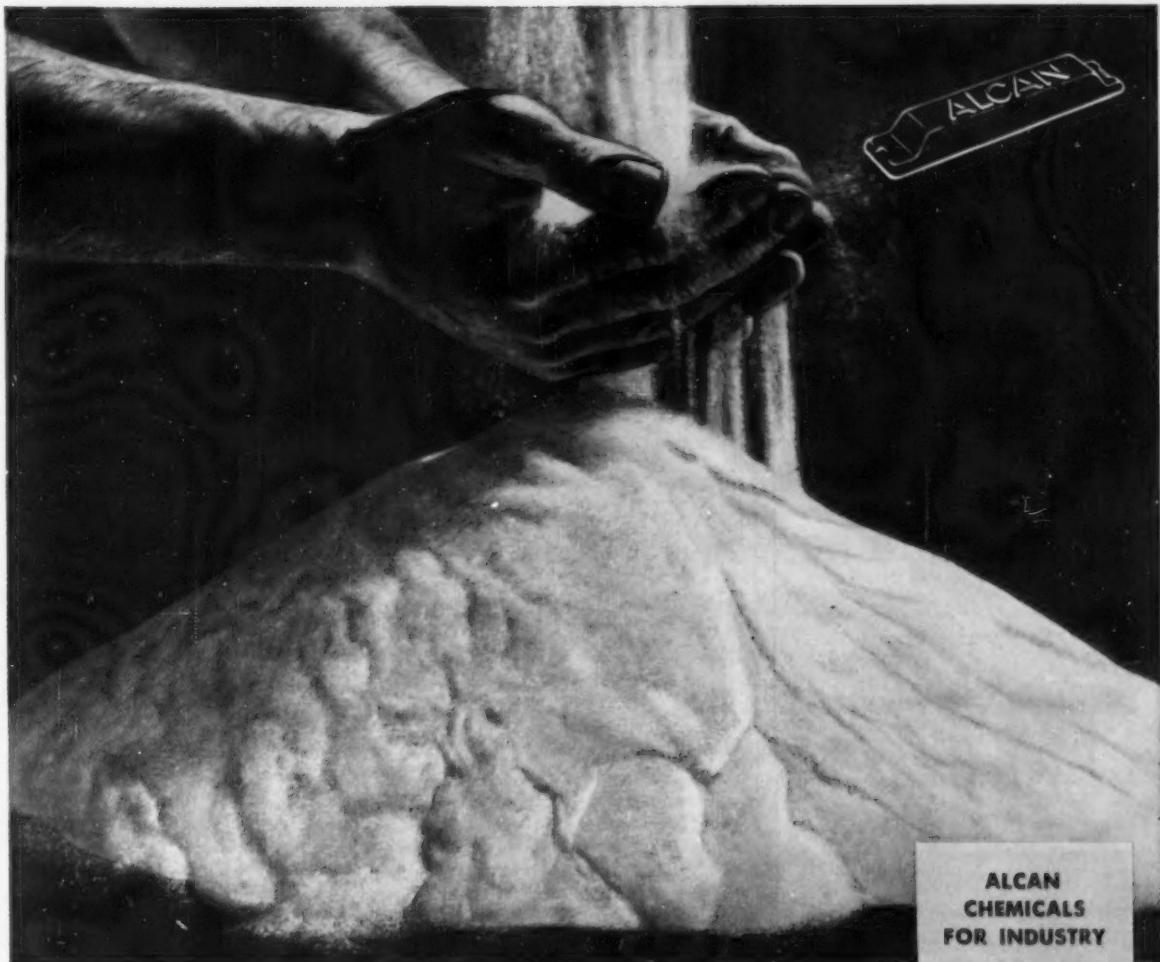
To this end, Waksman is striving to

equip the institute with the best in men and machines. In addition to a top-flight working staff, renowned scientists in many fields will be welcomed, given a place to work. Among the first of these is Columbia University biochemist Michael Heidelberger, who will pursue his amino chemistry research at the institute.

But it's obvious even to the casual visitor that the accent is on youth. To cultivate and encourage his young colleagues, Waksman is striving to keep roughly half of the institute's top positions open for filling from within the ranks.

On the inanimate side, the institute boasts such highly refined research tools as a 200-plate countercurrent extractor and a micromanipulator that can extract the nucleus intact from a cell.

Needless to say, these resources will be powerful helpmeets in tilling the scientific soil from which future medical and industrial boons will spring. But, as Waksman points out, the institute will not abandon its discoveries on the threshold of practical development. A fully equipped fermentation pilot plant (see next page) headed by Rutgers professor of industrial chemistry (chemical consultant for Benzel Products) Adolph Zimmerli, will give industrially promising discoveries a head start.



## What's Alcan doing in Chemicals?

AS THE PRODUCER of one-fourth of the free world's aluminum, Alcan (Aluminum Company of Canada, Ltd.) is concerned with chemicals in a big way. With a large range of metallic and non-metallic products, evolving from the production of aluminum, Alcan is in a position to supply chemicals to industry for a variety of uses.

These Alcan Chemicals have to be good—and you can depend on it—they are. Co-operating in their production are Alcan's sister companies. Each of these affiliates specializes in its own field of endeavor:

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# sta'b'liz'er

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Cough syrups, flavorings, coloring agents, medicines, and many other products rely on the dispersing, suspending, or emulsifying action of Glycerine for their stability. In these formulations Glycerine is preferred not only because of its stabilizing action, but also because of its demulcent and humectant properties, and its pleasant taste.

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To give one recent example, Glycerine's stabilizing action was a key factor in the development of a new starch solution for use as an indicator in iodimetry. In tests this Glycerine-stabilized solution gave the same results six months after mixing as it did when fresh.

## Balance of Properties

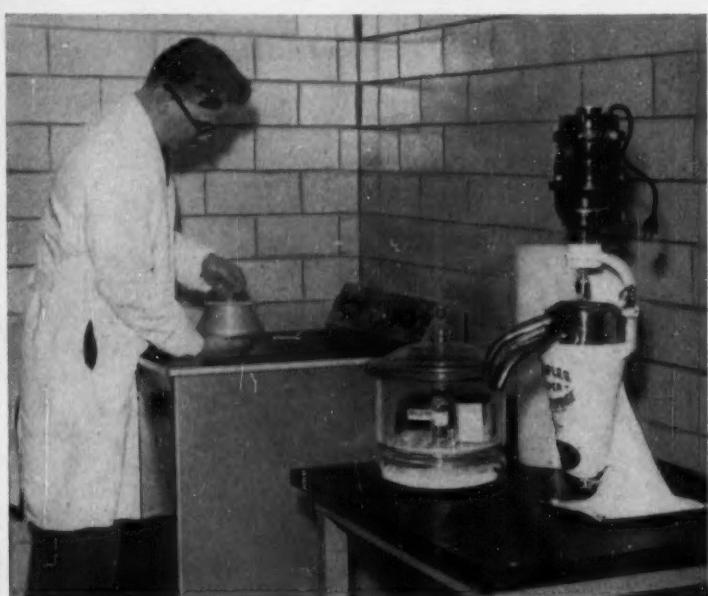
Glycerine's stabilizing action is only part of the story. You can count on versatile Glycerine to serve as—

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preservative	blending agent

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of Glycerine*

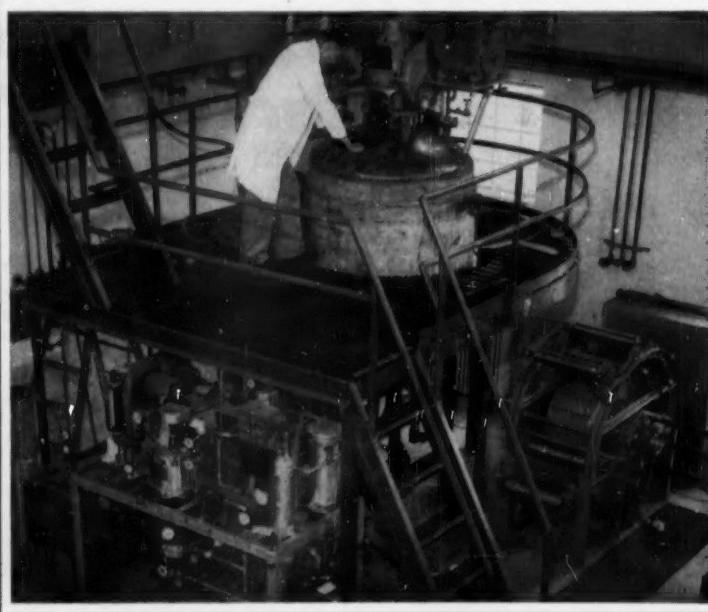
## RESEARCH . . . . .



## Academic to Commercial

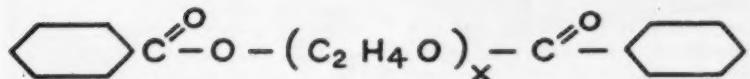
DUAL NATURE of Rutgers' new microbiology institute (*see p. 68*) is pointed up by the contrasts that may be found within its red-brick walls. On the one hand, researcher Ernest Herrmann, Jr. (*above*) tends an ultracentrifuge—almost symbolic of fundamental scientific research—in the antisepic surroundings of a microbiology laboratory centrifuge room. Fellow staffer Edwin Bailey (*below*), meanwhile, oversees a

400-liter unit in the institute's pilot plant. Donated by various firms and organizations, the equipment comprising the engineering unit will be used to study problems involved in the mass production of antibiotic substances. Results gained here, it is hoped by institute director Selman Waksman, will lead to the design of new processes and improved equipment for industrial fermentation processes.



# announcing 8 new benzoate esters

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TENNESSEE announces a new series of glycol dibenzoate esters, each with special properties that may improve your product or processing. They are *light-colored, stable, mild-smelling*, and have *high-boiling points*. Their property range varies widely in freeze points, viscosity, and solubility . . . especially *solubility of water* in the higher glycol members. *Suggested Uses:* plasticizers for polyvinyl, cellulosic and phenol-formaldehyde resins. Other potential uses: lubricants, textiles, leather, adhesives and flotation.

*Write on your letterhead to Dept. C-6 for experimental samples and technical data.*

### TYPICAL PROPERTIES OF NEW *Benzoflex* ESTERS

Benzoflex Number	9-98*	2-45°	E-60	T-150	P-200	P-300	P-400	P-600
Chemical Name	Dipropylene Glycol Dibenzoate	Diethylene Glycol Dibenzoate	Ethylene Glycol Dibenzoate	Triethylene Glycol Dibenzoate	Polyethylene Glycol 200 Dibenzoate	Polyethylene Glycol 300 Dibenzoate	Polyethylene Glycol 400 Dibenzoate	Polyethylene Glycol 600 Dibenzoate
Color APHA	100	50	50	100	100	150	150	300
Boiling Pt. @ 1 mm. Hg., °C.	195-200	200-205	....	223-37	217-290	243-327	258 d.	200 d.
Specific Gravity @ 25°C.	1.129	1.178	Solid	1.168†	1.158	1.150	1.145	1.141
Freeze Point, °C.	<35	28 16	70-2	47	<35	<35	<35	3.8
Pour Point, °C.	-20	-25†	Solid	Solid	-30	-30	-35	Solid
Flash Point, °C.	212	232	186	237	248	258	254	264
Refractive Index @ 25°C.	1.5282	1.5424	Solid	Solid	1.5252	1.5137	1.5077	1.4984
Viscosity (cps. @ 20°C.)	215	110	Solid	Solid	101	130	167	330
Solubility, % @ 25°								
In water	insol.	insol.	insol.	0.05	0.80	0.14	0.70	0.78
Water in	0.45	1.0	....	....	2.3	8.3	16.5	32.0
Aliphatic Hydrocarbons	sol.	sl. sol.	insol.	sl. sol.	insol.	insol.	insol.	insol.
Aromatic Hydrocarbons	sol.	sol.	sol.	sol.	sol.	sol.	sol.	sol.

\*—Available in commercial quantities. All others now available in development quantities only.

†—Supercooled liquid.

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RESEARCH . . . . .

**Shiny New Vehicle**

Further evidence of the trend toward synthetic paint vehicles is a new petrochemical from Standard Oil Development Co. (New York). Called C-Oil, it's expected to reduce still more the dependence of industrial paint manufacturers on linseed, soya, and tung oils—long notorious for their price and supply fluctuations. Added features are the high scratch and stain resistance it is said to give paints by reason of the mirror-smooth, hard finish it imparts.

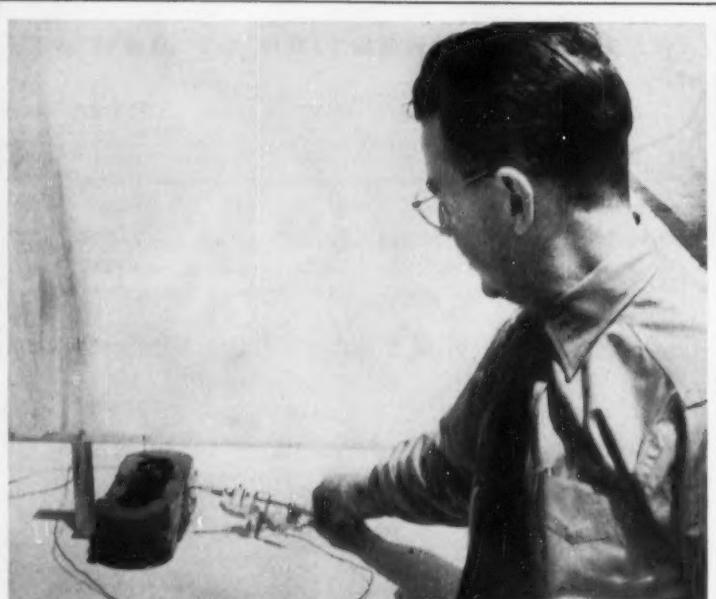
All the company will say about the product chemically is that it is based on butadiene. But even though patents are still pending and there is still no firm price (production is still semi-commercial at the Esso labs in Baton Rouge), the Glidden Co. has been licensed to develop surface-coating uses.

Esso Standard has logged seven years' lab experience with the product,

during which it has been worked into long-life, neutral-tone varnishes, masonry paints and metal primers. Through its use, Glidden anticipates better quality control than is possible with natural oils.

C-Oil is a highly viscous, sticky, almost colorless liquid. Lack of color is important in making white paints and also in neutral colored varnish. Surface coatings made from C-Oil are said to be resistant to alkali, dilute acid, water, and oxygenated solvents. A C-Oil enamel, after five years immersion in isopropyl alcohol, still looked like new and had not softened, according to its developer.

Service trials of C-Oil-based paints on concrete playroom floors reportedly turned out favorably. And in primers for metal surfaces, the new vehicle has three times the bond strength of previous products. In addition, Esso Standard claims that glass-like, easily machined plastics can be made from the viscous oil.



**Sunshine Potential**

BATHED IN SUNLIGHT, the small device shown above converts light into electrical energy. A new development of the Air Force's Wright Air Development Center (Dayton, O.), the generator utilizes a  $\frac{1}{2}$ -in.-square cadmium sulfide transducer to produce one-third of a volt of electrical potential. Largely responsible for the

invention is Air Force researcher Lt. Col. Gerard Leies (above), one of the co-discoverers of cadmium sulfide's high transducing efficiency. He postulates that a wafer-thin rectangular cadmium sulfide crystal,  $4 \times 15$  ft., built into the roof of an average house, would supply enough current for all lights and appliances.



## "Doc Barrett" makes car manufacturers see red...and like it!

Not so many years ago a leading automobile manufacturer made headlines by offering customers cars in any color they liked . . . "as long as it's black." He just couldn't see red or any other color for a car because automotive finishes at that time weren't good enough to keep colors from fading out.

Today, however, you can have a car in the color of your choice—from chartreuse to shocking pink. And "Doc Barrett" had a lot to do with this changed color situation. He supplied Phthalic Anhydride from which wonder-working alkyds were developed. These alkyds fortify modern automotive

finishes to assure weather-resistance and bright color-fastness for years to come.

This is but one of hundreds of instances of how Barrett products help manufacturers make their products better. It will pay you to find out how useful Barrett can be to you. Technical assistance on your application problems is available without cost. Inquiries invited.

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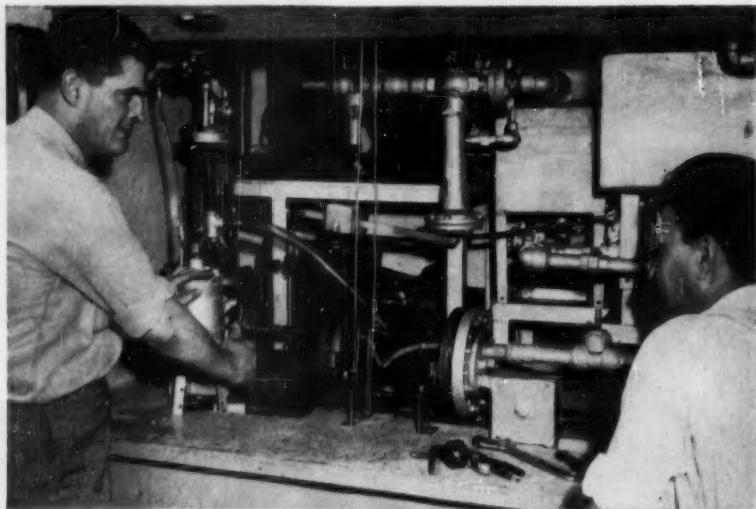
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## RESEARCH . . .



COMMONWEALTH'S HOMER (left): Needed, low-cost metallics to break a . . .

## Gas Plating Stalemate

This week, Commonwealth Engineering Co. of Ohio (Dayton) finds itself facing this problem: to exploit fully its pet project—deposition of metallic coatings by vapor pyrolysis\*—it needs new and cheaper volatile organometallic compounds. But the variegated research necessary to develop them won't be forthcoming until potential suppliers can be assured of a substantial market for their chemical progeny.

Here's the inside story on the stalemate. Some compounds that deserve pilot-plant trials are too expensive (e.g., chromium hexacarbonyl, antimony trimethyl, antimony triethyl are in the \$1,000-per-lb. bracket) for use in a full-scale development program. Suppliers insist they must charge reagent prices until consumption of the hard-to-make chemicals is high enough to justify cost-cutting volume production methods. Moreover they're reluctant to underwrite the expense of researching the synthesis of other chemicals that might prove valuable in gas plating.

In gas plating, suitable metallic compounds are gasified, brought into contact with the object to be plated (which is maintained at high temperature) where they release their metal component. Claimed advantages over electroplating are speed, applicability to nonconductors, better reproduction of irregular surfaces.

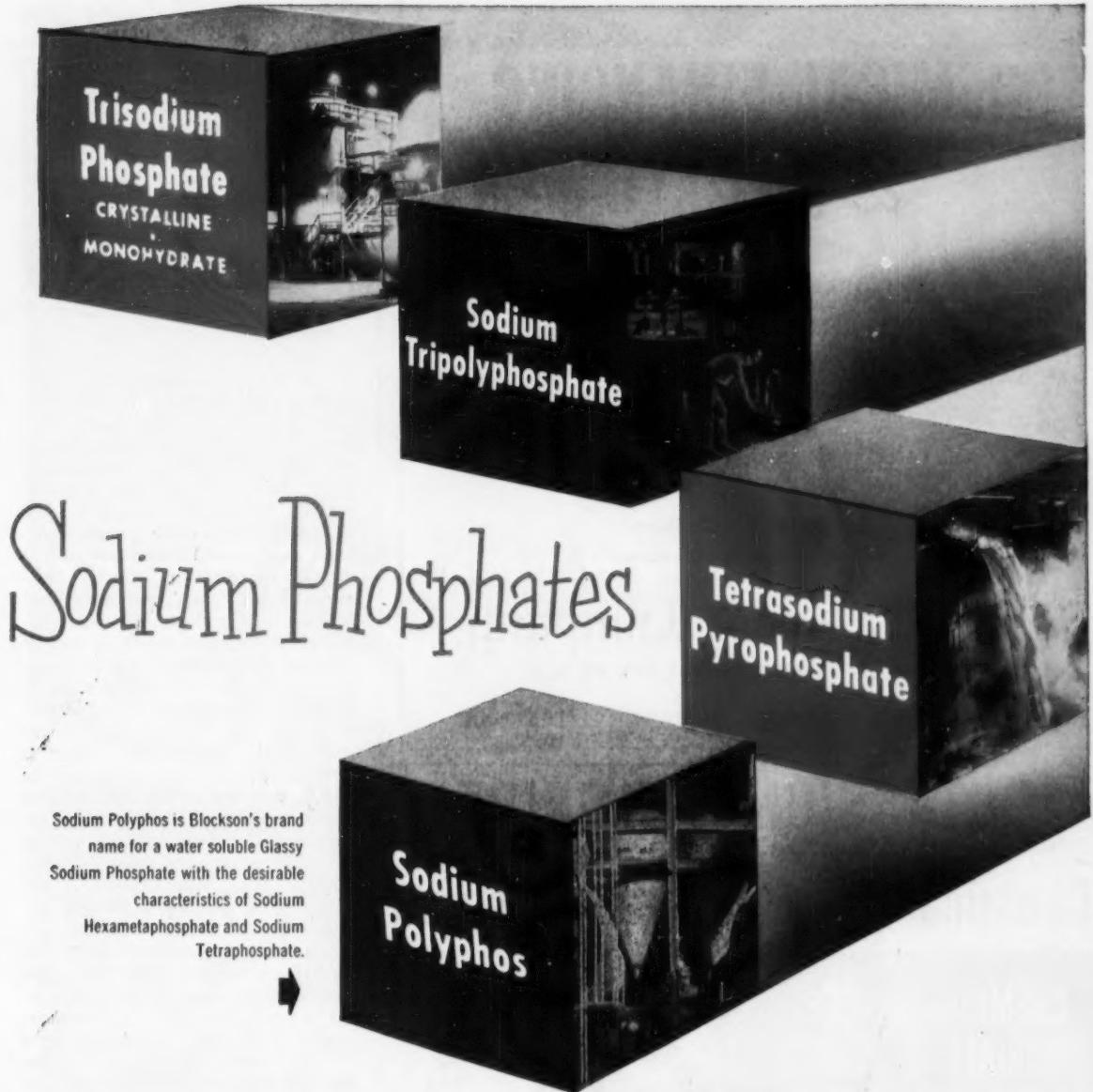
H. J. Homer, project supervisor at Commonwealth, sees no theoretical

limitations to the process. But, of course, there's one practical hitch—availability of a suitable spectrum of compounds. Ideally, says Homer, these compounds should (1) be competitive with nickel carbonyl, (2) volatilize without decomposition; (3) deposit pure metal by decomposing at some reasonable temperature higher than necessary for volatilization. Right now, Commonwealth uses nickel carbonyl (now \$1.15/lb.) in its commercial plating. Iron, chromium, tungsten, and molybdenum carbonyls are also adaptable to the process.

But major carbonyl producers, International Nickel and General Aniline's Antara Division disclaim any interest in researching new compounds for gas plating purposes. Inco says electroplating is cheaper, less dangerous. Chief use of Inco's nickel carbonyl is abroad in the production of Mond nickel. Antara is currently confining its research on iron carbonyl (45¢/lb.) to preparation of iron in various particle sizes and carbon contents for use in electronic equipment. And A. D. Mackay, Inc. (New York), another source of volatile organometallics, considers them too toxic, explosive, and costly for general practicability.

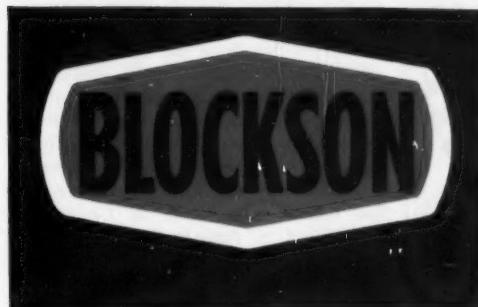
Despite all this, Commonwealth President Malvern Hiler sees no insurmountable handling problems with gas plating chemicals, points to the experience of others with this type of material (e.g., Rohm & Haas's use of nickel carbonyl in acrylic ester production). Besides, he says, intensive

\* Popularly called gas plating, the method is covered by U.S. patents 2,332,309; 2,344,138; 2,475,601; 2,656,284; 2,602,033; 2,508,509, among others.



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## RESEARCH . . . . .

research would probably produce compounds suitable not only for gas plating but also for other applications such as catalysts, fuel additives and sources of extremely pure metals.

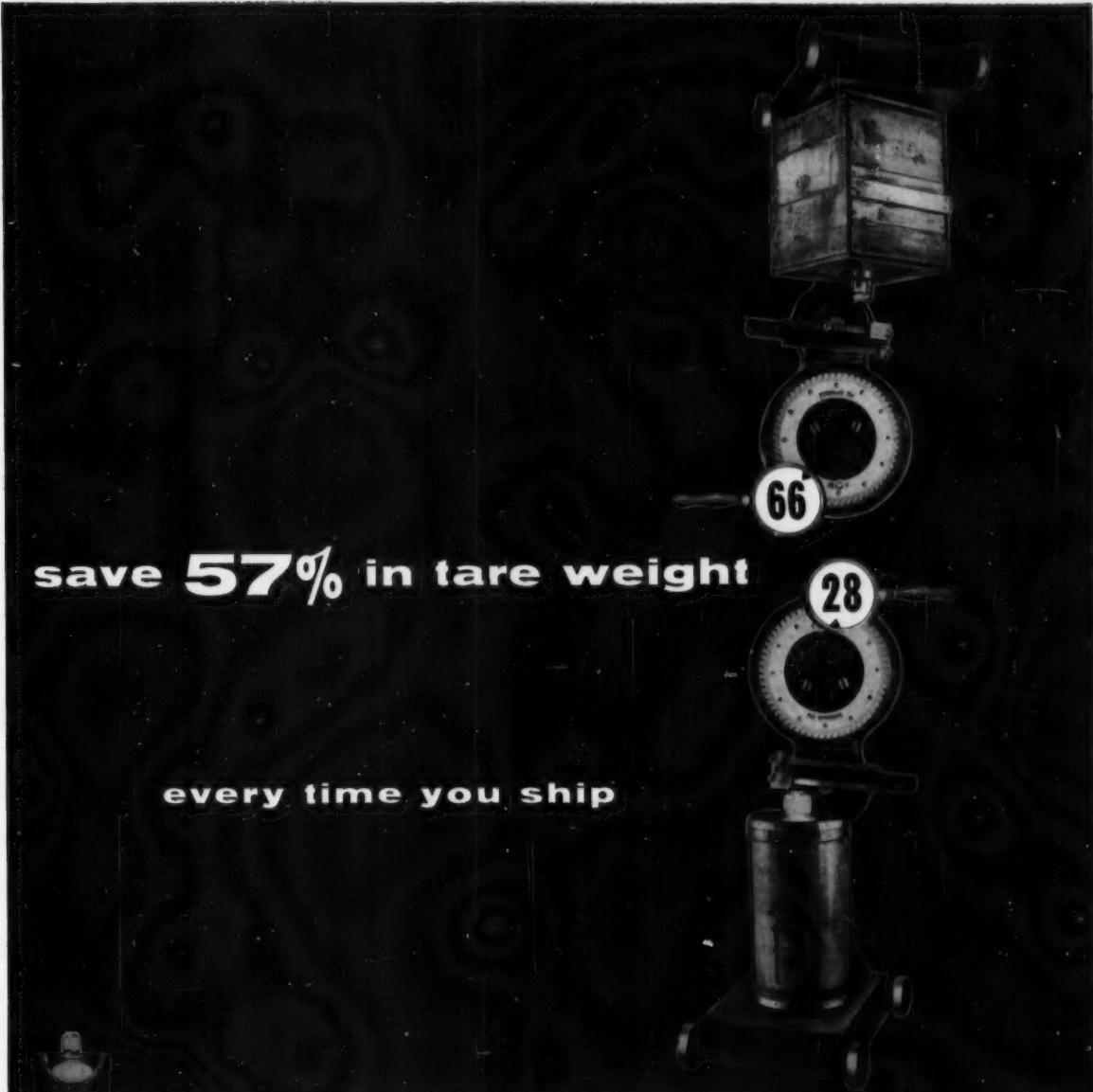
As proof of his confidence, Commonwealth itself is doing some chemical research on the problem; and so, incidentally, are companies like Linde Air Products, Metal Hydrides (Beverly, Mass.), and Arapahoe Chemical Co. (Boulder, Colo.). But there's room, Hiler feels, for a lot of others in the field.

Interested researchers should take note of some of the fine points in pioneering a gas plating chemical. Since it is highly desirable that vaporization be accomplished at a low temperature, the best compounds are compressed gases, available in cylinders. Decomposition temperature should be less than 800 F because large machined-finish steel items become distorted at this temperature. If refractory elements such as aluminum, boron, and silicon are to be deposited, their compounds should contain no oxygen—to minimize the likelihood of forming oxides. As for metals that form carbides easily, their compounds should be carbon-free.

While the idea of gas plating is certainly not new (it dates back to nickel carbonyl work by Ludwig Mond in 1890), it still fascinates researchers. One big reason: it can be adapted to continuous processing. For example, you can nickel-plate a roll of paper by running it through the carbonyl gas chamber under the right conditions. The electrical industry has eyed this principle for the fabrication of condenser papers. And a U.S. patent recently granted to Commonwealth (2,656,284) covers a process of continuously plating a moving hot metal sheet as delivered from a rolling mill.

Still another feature, speed of plating, was demonstrated in one test where 13 lbs., 6 oz. of nickel was deposited on a small table-top unit during a single-pass, 60-minute plating cycle. An early bugaboo of gas plating, poor coating-to-surface adhesion, has been overcome by a method of removing adsorbed gas from the surface to be plated. Described in Commonwealth's U.S. patents 2,475,601 and 2,653,879, the process, in theory, plates all metals that form gaseous carbonyls.

A close cousin of gas plating is the chromizing technique used by firms like the Chromalloy Corp. (New York). Big differences are the temperatures involved (1,900 to 2,050 F vs around 400 F for gas plating) and the



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## RESEARCH . . . . .

nature of the coating. In chromizing, chrome-containing powders are packed with ferrous metals and then heated. A hard coating containing up to 60% chromium can be obtained.

One advantage is that chromium diffused into the base metal in this way can't peel. And because the chromium displaces an equivalent amount of the ferrous base material, dimensions of the part are left unchanged. Outstanding limitation is that only ferrous alloys can be plated this way.

Commonwealth's chief hope today is that the successful members (tetraethyl lead, and uranium hexafluoride) of the volatile metallics family will eventually be joined by youngsters that will take up gas plating as a career. Some promising newcomers are the hydrides of boron and silicon, metal bis-cyclopentadienyls, and the acetylacetones of beryllium, etc. But they'll have to be cheap (less than \$1/lb.) and in good supply before they'll get into the plant. And that will take a lot of research, which up to now has been slow to materialize.

**Natural Anti-oxidants:** New findings by the research committee of the American Spice Trade Assn. show that two naturally occurring spices, sage and oregano, contain highly effective anti-oxidants. At the Hormel Institute, University of Minnesota, stability tests showed an index of 28 for the sage product, 16 for the oregano antioxidant. Tests were run at 0.02 concentration, at which butylated hydroxyanisole, among the most effective anti-oxidants currently used in the food industry, had an index of 10. Chemical identification of the spice-derived anti-oxidants is still pending.

**New Plot:** Battelle Memorial Institute (Columbus, O.) has now completed the purchase of a 397-acre plot of land, 15 miles west of downtown Columbus. Clyde Williams, president and director, says the acreage is needed for new large-scale engineering and agricultural experimental projects. Battelle now supports a staff of 2,150—more than double the number employed at the close of World War II.

**Pluronics Patents:** New U.S. patents covering the Pluronics and related types of nonionic surface-active agents have been granted to the Wyandotte Chemical Corp. (Wyandotte, Mich.). They are 2,674,619 and 2,677,700.

**Ray Monitor:** A new Geiger-counter monitor from Nuclear Instrument and Chemical Corp. (Chicago) can handle radiation intensity up to 20,000 counts/minute.



## Here's a One-Man Bulk Materials Handling System for Your Plant...

In the Dempster-Dumpster System of bulk materials handling only one man, the driver of the truck-mounted Dempster-Dumpster, is required for operation. The Dempster-Dumpster serves scores of detachable Dempster-Dumpster Containers. Container capacities range up to 4 times that of conventional dump truck bodies and each container

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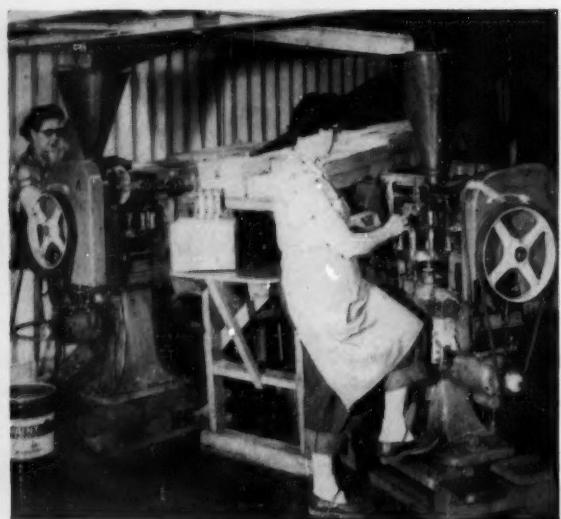
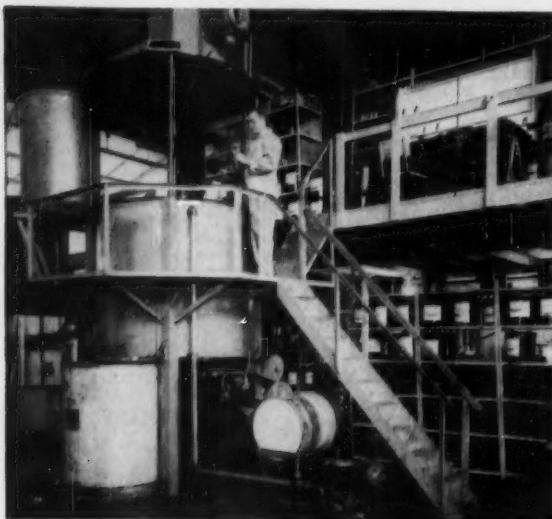
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# SPECIALTIES . . .



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**CARTONED COLOR:** Boxed tubes go to associated paint makers, thence to dealers.



**BENNETT:** Solon with a color sense.

## Spreading the Spectrum

This week representatives of 13 medium-size paintmakers\* are congregating at the Hotel Utah in Salt Lake City. It's the annual convention of Colorizer Associates, a group of paint manufacturers and marketers bonded

by an interest in a unique paint coloring system that enables members to offer coatings in some 1,322 hues, plus 336 special deep tones.

In the five years since its introduction by a Salt Lake City firm, the Colorizer system has been adopted by manufacturers throughout the nation, and is currently handled by some 5,600 dealers. It's proved not only to be a boon for the "do it yourself" painter, but also has been a prime factor in spurring the paint industry as a whole to broaden the rainbow of colors offered to home decorators.

Particularly developed for alkyd (oil-base) paints, colorants have been brought along to the point where many of the same tubed pigments used in the oil paints can be readily used in butadiene-styrene latex and polyvinyl acetate paints as well. Firms selling those water-based paints can, with the aid of three specially developed colorants, offer 252 colors.

**Matter of Mathematics:** Colorizer achieves its 1,322 alkyd colors quite simply: by using 16 colorants, each in 8 different-size tubes, along with either a white or gray base paint. One of any of these 128 pigment portions combined with a base gives an individual shade; thus 256 colors are

\* The 13: Bennett's (Salt Lake City); Blue Ribbon Paint Co., Inc. (Wheeling, W. Va.); Walter N. Boyen Co. (Oakland, Calif.); Brooklyn Paint & Varnish Co. (Brooklyn, N.Y.); James Bute Co. (Houston); Great Western Paint Corp. (Kansas City, Mo.); Jewel Paint & Varnish Co. (Chicago); Kohler-McLester Paint Co. (Denver); W. H. Sweeny & Co. (St. Paul, Minn.); Vane-Calvert Paint Co., Inc. (St. Louis); Warren Paint & Color Co. (Nashville); George D. Wetherill & Co., Inc. (Philadelphia); Imperial Varnish & Color Co., Ltd. (Toronto, Ont.).

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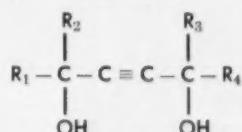
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104	37°	33.8 dynes/cm(.07%)	8 sec. (.1%)	0 cms

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## SPECIALTIES . . .

available with one tube, one shade. And theoretically, addition of any one of the 120 other color tubes would give a new shade. Associates, however, has settled on 732 with the white base, 590 with the gray.

Many advantages, Associates points out, accrue to the dealer. He can reduce stocks up to 70%, cut inventory, and still offer broad business-boosting color range. The base paints come in wall flats, semiglosses, full glosses, floor enamels, outside paints, and in some cases, in latex or PVAc paints.

**Special Pluses:** Although tubed colors neither originated with, nor are exclusive to, Colorizers, they do claim some individual features.

Keystone of the system is, perhaps, the "dead-end" tubes. These resemble ordinary toothpaste tubes, differ in that they are opened from the bottom or "crimped" end, so that contents can be removed completely. (Tubes are made from a special alloy, which won't affect the pigments.)

Colors in the tubes aren't as concentrated as pigments in common use. Relatively weak concentrations allow a 4% by volume error in mixing (before the eye notes difference). But in filling the tubes, specially designed equipments holds accuracy of content to within  $\pm 0.5\%$  by weight.

Tubes are filled by Bennett's only in this country. In Canada, Imperial Varnish & Color Co. fills them, and in London, Eng., Jensen & Nicholson Ltd. loads them.

**Associated Independents:** As important to the success of the system as its mechanical features is the Colorizer Associates arrangement. The firms retain complete identity, brand-name rights, manufacturing processes, and individual services. In some cases firms asked to join, others were added by invitation. Associates elects officers (for two years) from the various companies, and at yearly meetings, talk over results and recommendations of committees.

Outside of all using the same colorants—and last year they used a uniformly made and labeled flat wall alkyd—the firms have no common denominator. Advertising and promotion of the Colorizer system, however, is done on a national scale in well-known consumer magazines and trade publications.

**Colorful Senator:** The Colorizer system is the outgrowth of work by Wallace F. Bennett, now a U. S. senator from Utah.\* As head of the 75-year-

old Bennett's paint company, he began selling tube-and-base-paint coloring system in 1937.

It wasn't until after the war, however, and after three years of search that he developed his full system. By 1949, Bennett's could provide all 1,322 colors, and Colorizer Associates was formed.

Now, at his modest-size plant on Salt Lake City's outskirts, a battery of four filling machines can turn out a total of 8,000 tubes/hour.

**Critics, Too:** In spite of its success, the Colorizer system hasn't swept all before it. The "big 10" paint makers in the country stick with their own

tinting systems. Nevertheless, many paint authorities give Bennett a lot of credit for spurring more companies into offering more colors.

There's a wide variation in how the tinting's done, ranging from other tube systems to special dealer-operated machines that automatically mix paints to specific shades. All can present good arguments for their coloring systems.

Net gain from all these techniques: a new concept in color for the home. Paint companies have brought the rainbow indoors, and it's paid off not only in more attractive homes, but also in paint sales.



TOMATOES GET B-214: More toxic, less effective when sprayed on foliage.

## Slower Pace for Plants

A novel experimental growth regulator with possibilities is B-214, a product of Ethyl Corp.\* Still not commercially available, B-214 this season faces its toughest testing program after two years of study.

Generally the action of the regulator is somewhat similar to that of maleic hydrazide, Ethyl says. Though not a certainty yet, it is hoped the product will work where maleic hydrazide doesn't.

Current experiments by the company are being carried out at Boyce-Thompson Institute for Plant Research, Inc. (Yonkers, N.Y.) as well as by cooperating institutions throughout

the country. It's still made in company labs in Detroit where it was discovered.

Tests have revealed:

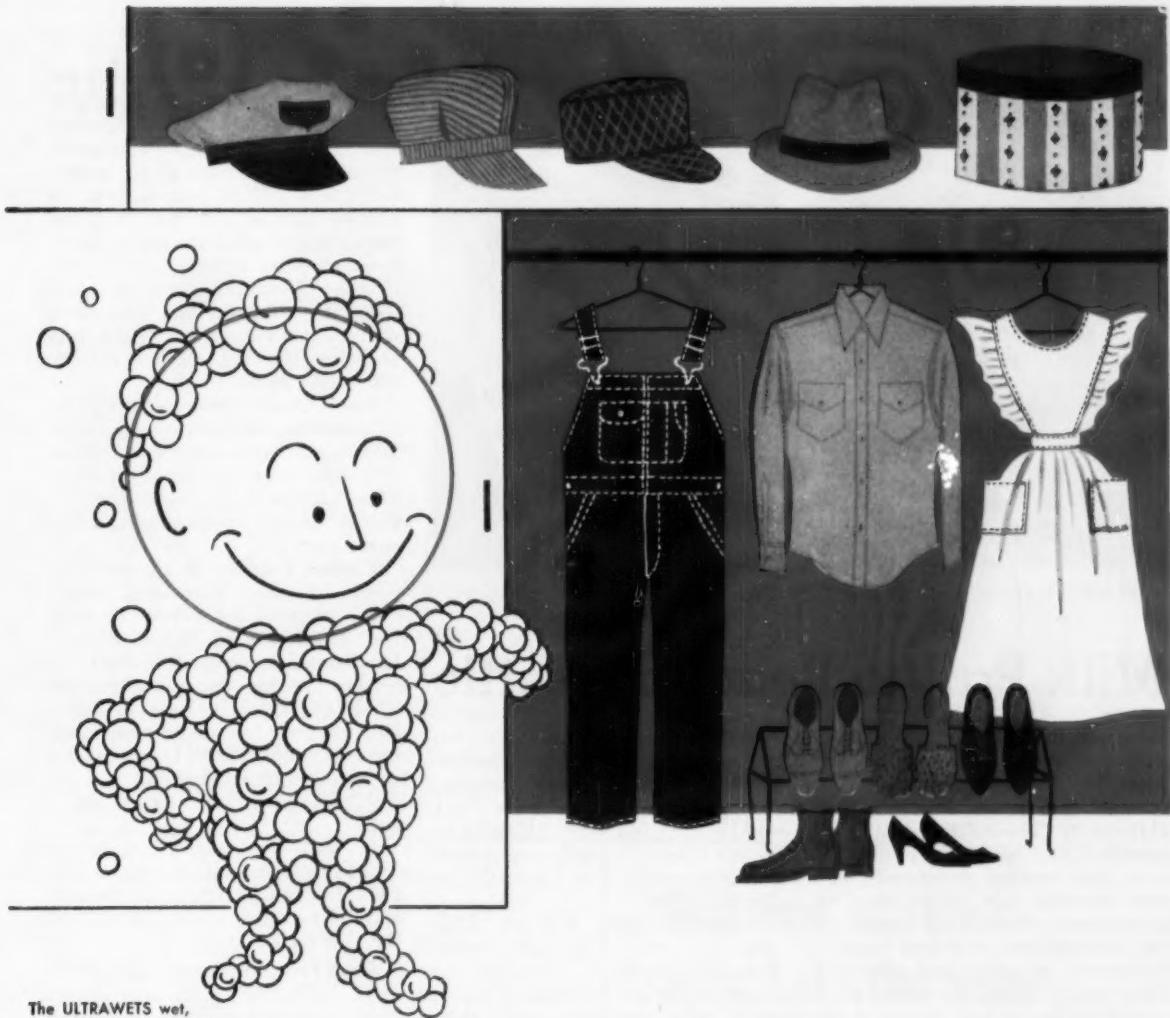
- Tomatoes—two behavior characteristics: (1) chemical is absorbed more readily through root system than through leaves, (2) when root-absorbed, phytotoxic level was 200-500 ppm.; through foliage, 1,000-2,000 ppm.

- Sugar cane—sharp reduction in growth rate. A spray with 0.25% B-214 cut growth to one-third that of control canes; at 0.4%, growth slowed to one-ninth that of controls.

- Cotton—resprouting halved by application of spray with 0.5% and 1% concentration of sodium salt of B-214.

\*Rebelling at his drab-colored Senate office, Bennett eventually arranged to have it redecorated in livelier tones, at his own expense, and with his own paints.

\*Alpha-cyano-beta (2,4-dichlorophenyl) acrylic acid. Both the acid and its derivatives—an ethyl ester, sodium salt and triethanolamine salt—have been used so far.



The ULTRAWETS wet, penetrate, clean, emulsify

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SPECIALTIES . . . . .



BORDEN'S MARUSI AND LEICESTER: Taking the milky way to chemistry.



## Milk Pail to Reaction Kettle

From milk to casein to glue is a pretty obvious move for a dairy company to make. The Borden Co. has done that. But it has gone much further. Through its Chemical Division, it has branched into synthetic resin adhesives, into molding compounds, and more recently into other areas via polymerized chemicals. A seemingly odd diversification, it is held together by interests in casein and adhesives. Take epoxy resins, for example, a current subject of hot interest in the Chemical Division. Adhesives applications for epoxies tempted Borden into the field—now, however, other well-known end uses look even better, and Borden can readily expand its facilities to compete for these markets.\*

Vinyls for adhesives and other applications were a common bond between Borden and its newest acquisition, American Polymer Co. (Peabody, Mass.). But the new addition does more than strengthen the division's interests in vinyls—it gives Borden a position in supplying materials for latex paints, textile finishes, as well.

Casein, which got Borden into all this, is still a major item. Although it has lost its leadership in adhesives, casein is still important raw material for some plywood glues. And, compounded with other materials, it is widely used in coating glossy papers. This has altered end use importance—more now goes to paper than to glue.

\* Although Borden uses epichlorhydrin in making its epoxies, it doesn't condense it with bis phenol like most other epoxy makers.

In the average consumer's eye, too, casein adhesives underpin Borden's interests in the chemical industry. First there was Casco glue for woodworking—this has been followed by Elmer's Glue-All, a polyvinyl acetate glue now packaged in a polyethylene squeeze bottle.

**Something from Surplus:** Little casein is produced in this country. There's little point in making it (from surplus milk—100 lbs. make 3 lbs. of casein) here nowadays, since there are other more profitable milk products. But it was readily available from Borden back in the 1900s when the Casein Co. of America, which was later the nucleus of the Chemical Division, was founded.

The Casein Co. was then producing casein for paper coatings and cold-water paints; during World War I it began to manufacture casein glues.

Not until 1929, however, did Borden, as a supplier to CCA, decide to diversify its interests and take over the firm. Along with CCA came Bill Leicester, whom many credit with building the Chemical Division to its present importance.

Sparked by the tall, English-born Leicester, CCA made important contributions to the American adhesives industry—and with them Borden changed from merely grinding and blending casein for glues to an actual chemical processor.

Leicester effected this change in the late '30s by bringing from Germany the techniques of making urea resin glues. These pioneer liquid urea glues

(Casco Resins) were followed by dry powder urea glues (Cascamites) in 1940. Then in 1942, CCA pioneered again, brought out its waterproof, resorcin-phenol resin glues, tagged Cascophens. CCA rounded out its adhesive line in 1944 with polyvinyl resin glues. It has since added blood-based glues for plywoods.

In the Chemical Division now, urea resins (for adhesives and other uses) are probably the major product, with phenolics following, and next resorcin and casein glues.

Casein hasn't been neglected for development, however. Protovac modified caseins with controlled, uniform properties were introduced in 1939. They are used in paper coatings, leather finishes, paints, inks, adhesives.

**Plastics, Too:** Borden's growing interest in other chemicals besides casein prepared the way for its eventual acquisition of Durite Plastics, Inc. Durite, incorporated in 1920, had prime interests in phenol-furfural molding resins. It later expanded into phenolic molding compounds, bonding resins, etc. Durite makes resins for shell molding, an end use that hasn't yet reached its full potentials.

In 1947 Borden acquired Durite. And in 1948, it combined Durite with CCA to form its Chemical Division, and Bill Leicester was named to head the new facilities.

**Small Frog, Big Pond:** Although the Chemical Division sales have usually been about \$15 million yearly since the war, the division is still only a small part of Borden. Not even in peak years has it provided much more than 3% of the parent firm's sales.

But as the division's new head, A. R. Marusi, points out (he succeeded Leicester in April of this year), Borden is still primarily an operating dairy company—the world's second largest.

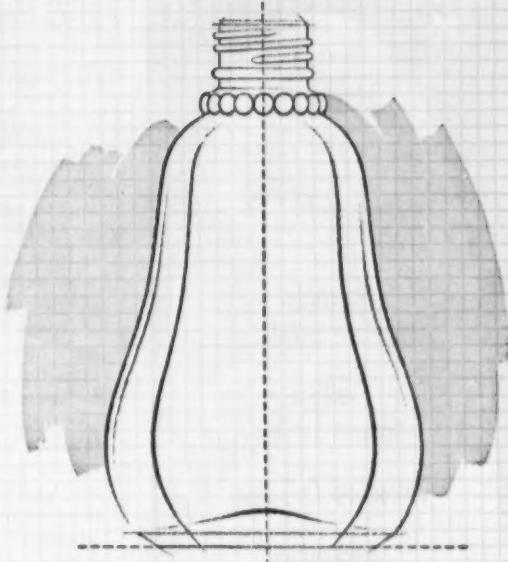
Borden also produces chemical and specialty products in divisions besides the Chemical. Whitson Products Division, for example, turns out special items like Duolizer, a stabilizer-emulsifier for ice cream; a high-temperature vanilla flavoring powder; and a vegetable protein substitute for egg albumin in candy making. Too, there are prescription drugstore items like milk replacement powders, milk sugars, and fortified milk powder for the diet of the aged.

The labs has thus led a long way from the dairy barn. But for Borden, this chemical supplement to its milk diet has proved to be a profitable diversification.

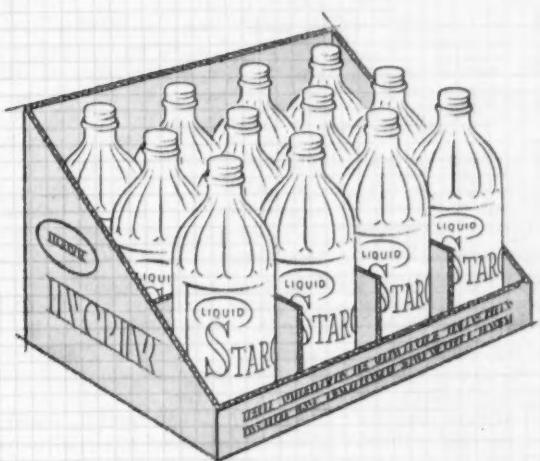
# What makes a package a SALESpackage?



The precision touch  
of the package engineer



The creative imagination  
of the designer



The retail know-how  
of the merchandiser

**Any one of these  
may hold the answer  
to your problem**

The right answer is  
usually a combination of  
these various factors.

The Owens-Illinois method of  
systematic exposure of packaging  
problems to the engineer, the  
designer and the marketer  
assures you the maximum in  
consistent delivery of top  
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- Zirconium Oxide
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## SPECIALTIES . . . . .

### Caveat Labeler

You've got a brand new product. It's novel, it does its job well. It's simple to use—but its misuse might be hazardous. Your job: getting the consumer to employ it safely and properly.

Much of that job can be done by proper labeling—including complete information right on the package. Labeling thus assumes a much greater role than that of simple eye-catcher and sales promoter. It becomes a matter of acute importance, particularly in the case of specialties makers who introduce so many products unfamiliar to most householders.

It was with the realization of labeling's increasingly important role that both the Chemical Specialties Manufacturers Assn. and the Manufacturing Chemists Assn. formed precautionary labeling committees. But advertising, too, is important in proper product use, and in order to coordinate both label copy and ad copy, the CSMA advocates that all firms set up a "copy control" department.

These advantages that can come with careful copy control—adequate labeling and sound advertising—were underlined at the May CSMA meeting:

- Primarily, it reduces injury hazards through emphasis on safe, proper product use.
- Proper "copy" enables a consumer to get best results and satisfaction from a product.
- It can reduce the sales losses that might be due to adverse publicity.
- It makes it easier to obtain liability insurance.
- It can prevent inadvertent—and often expensive—oversight of laws regulating products and packages.

Regulations—federal, state and municipal—applying to specialties are already numerous and becoming more so. Besides federal laws concerning pesticides, poisons, drugs and cosmetics, there are postal regulations, interstate commerce rules, and Dept. of Commerce commercial standards. It's now almost essential to have someone in any organization familiar with all applicable laws.

Assuredly, many products are successfully sold without proper labels. It's obviously simpler to design an attractive package without proper wording on it, than it is to include a lot of warnings. But every such package takes a chance with the user's safety, with the firm's reputation.

And it's unwise to take the attitude that no one reads the label, for countless consumers do read labels and have avoided trouble. Adequate labeling

won't assure absence of legal complaints, but it's a simple enough precautionary step.

It's not just enough to warn, it's often necessary to explain. The consumer who thinks, for example, that an aerosol shouldn't be stored where it might become overheated only because it might spoil would be in for a rude awakening if the unit exploded.

In advertising, avoidance of plagiarism and misleading statements would similarly be the work of the copy control department.

There is a host of other areas where copy control is of vital importance. And with more new chemicals being marketed, and more regulations in prospect, the need for copy control is becoming progressively greater. Already many firms are conscious of the importance of care in preparation of labels and advertising, but trade associations say that more will have to recognize it if the specialties industry is to make real strides.

**Handbook:** Crown Can Div., Crown Cork and Seal Co., Inc. (Philadelphia) has just published a second edition of its handbook on pressure packaging.

**Adhesive for Rubber:** A spray application, latex-base curing-type adhesive called RFA 17 has been developed by Polymer Dispersions Co. (Staten Island, N.Y.) Use: for flocking on milled, foam and latex rubber.

**Still In Hot Water:** Here is what's doing in "fair-trade" lawsuits against Schwegmann Brothers' Giant Super Markets in U.S. District Court New Orleans:

- Judge J. Skelly Wright has handed down a decision upholding fair-trade prices of products made and distributed by Warner-Chilcott Labs, division of Warner-Hudnut, Inc.
- Judge Alexander E. Rainold has granted an injunction restraining the sale of Dr. Tichenor's Antiseptic at less than the minimum retail prices set by its maker.

• Judge Wright recently heard arguments and took under advisement charges of civil contempt brought by Hoffmann-LaRoche Inc., which claims that Schwegmann has violated a fair-trade injunction issued May 15, '53. The injunction prohibited Schwegmann from selling all of the drug firm's products at lower than fair-trade prices.

**No Injunction:** In another "fair-trade" skirmish, District Judge C. C. Wyche in Greenville, S.C., recently denied a petition for a permanent injunction



# New Commodity Market and Supply Data

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Here's a brand new individualized service for business and industry . . . commodity distribution data accurately compiled by an entirely new analysis method. **CHICAGO & EASTERN ILLINOIS RAILROAD** will make each analysis upon individual request so the facts you receive will be specifically for you.

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**DUPOR No. 4 RESPIRATOR** has big double filters for easy breathing and greatest filtration! Soft rubber face mask gives airtight fit. Patented DUPOR valves bring in clean air—throw off breathed air! Weight 4 oz. Order today! Or, write for folder showing complete line of Dupor Respirators!

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## CRESYLIC ACIDS

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THE MIDLAND TAR DISTILLERS, INC.  
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Templeton 2-9090

## SPECIALTIES . . . . .

against the A and A Food Stores for allegedly selling antifreeze below fair-trade prices. The case had been brought by Union Carbide and Carbon Corp.

**Noncommercial:** Soil conditioners may have a place in Oregon home gardens, but they're not worth their cost for commercial operations, an Oregon State College soil scientist opines. His findings tie in with similar experiments in New Jersey (CW, Jan. 16).

R. A. Pendleton recently completed evaluation of some 16 different brands of soil conditioners (including both poly acrylonitrile and copolymer types) in eastern and western parts of the state. And though treatment on heavy soils in the west resulted in earlier crops and easier-to-work soil, Dr. Pendleton said it didn't increase yields of test crops (tomatoes, strawberries, carrots, sugar beets). Root crops were better shaped, and were easier to pull, however.

In alkaline, eastern Oregon soil, the conditioners gave faster water penetration, which leached out harmful salt, and gave some growth in-

crease of pasture mixture, but not enough to make the treatments pay.

**Errata:** Some early copies of CW carrying a story on the CSMA (June 5) contained a typographical error, listed the price of allethrin at \$12/lb., rather than at the correct price of \$32/lb.

**Herbicide in Seven:** Farmers in seven Texas counties will be permitted to use 2,4-D to control weeds in rice growing. Use of 2,4-D was banned in these counties recently (CW, April 17, p. 77), but the new ruling allows the chemical to be used with certain restrictions: it must not be used in mixed crop (rice and cotton) areas, nor closer than four miles to cotton fields. Airplane distribution is permitted except in a few restricted areas. The herbicide 2,4,5-T is suggested where 2,4-D can't be employed.

**Metal Preparation:** Pennsylvania Salt Mfg. Co. has added a new phosphatizing compound to its Fosbond line. Tabbed Fosbond 61, the material is designed for application to zinc (it may be also used with steel). It is mixed with water, applied by spraying.



## Inside Story on Cola Cans

SILVER LINING in the can-making business has been the recent shift to soft drinks in cans. Some hopeful authorities see possible requirements for 12-13 billion "pop" cans/year. At the American Can Co. plant in Jersey City, an inspector checks the lining of one of the flat-top tins coming off a body-

forming machine at 450/minute.

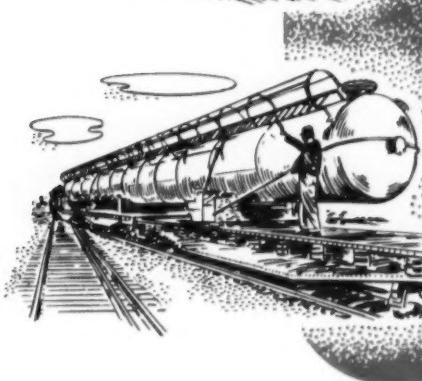
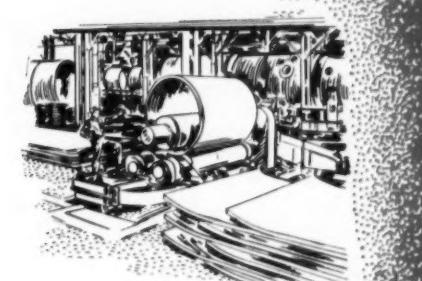
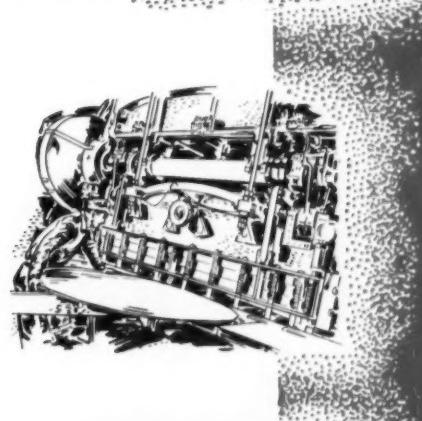
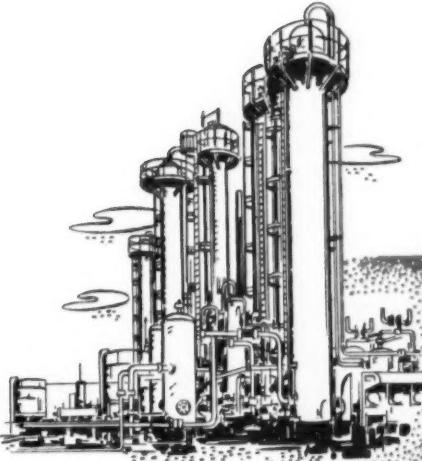
The soft drink containers are lined with a coating developed from that used in beer cans. It's a two-part system, with a baked-on oleoresinous finish (0.016 oz./can) followed with a vinyl spray coat (0.12 oz.). Cans are easy to cool, don't affect flavor.

# BEHIND THESE PRODUCTS..

*.. are 40 years of  
Continuous Advancement  
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- Operating under a code of strict compliance to every specification, Wyatt Metal & Boiler Works is fully able to fulfill the most exacting requirements of any job, any size.

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## Here's a new source for caustic soda

If your plant is in this area you can now have liquid caustic soda delivered more rapidly, more dependably, than ever before.

Here's what this new Hooker caustic soda plant at Montague, Mich., means to Midwest industry:

1. **Fast delivery.** You can have caustic soda delivered by tank car, loaded and dispatched within 24 hours of your call. In and near Chicago, tank car deliveries are made from Chicago stocks.
2. **Freight savings.** Depending on locality, you can save up to \$2.84 per ton on freight. (To learn specific freight savings to your plant, just phone the Chicago office—CEntral 6-1311.)
3. **Dockside delivery.** On Lake Michigan and adjacent waterways you can have Hooker caustic delivered by barge—a

new Hooker service (minimum 250 tons, dry basis). Savings are substantial.

4. **Prompt service you can count on.** At the Hooker sales office, 1 N. LaSalle St., Chicago, men are ready to help you plan efficient handling and storage, meet emergency needs, work out the most economical purchasing and delivery arrangements.
5. **Smoother, better processing.** You can use constant processing methods, and get consistent results with Hooker caustic soda. It's produced under careful control; more than 20 separate inspections and analyses protect its uniformity.

**Tighten up your caustic supply line now**  
Many industrial leaders in the Midwest are already enjoying the convenience,

economy, and dependable supply of Hooker caustic shipped from Montague.

You can have the same convenience and security *tomorrow*. Just pick up your phone and call us.



**Caustic soda for Midwest Industry** comes from this new \$12 million Hooker plant at Montague, Mich. The plant is built over a tremendous bed of pure salt, which supplies the caustic-producing cells.



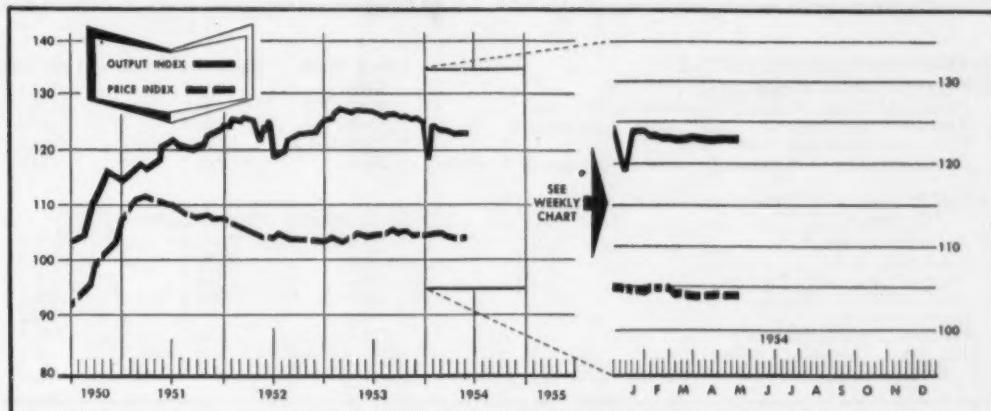
FOR FAST SERVICE, phone Chicago—CEntral 6-1311  
SALES OFFICE: 1 N. LaSalle St., Chicago 2

From the Salt of the Earth

**HOOKER ELECTROCHEMICAL COMPANY**

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# MARKETS . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries  
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

## MARKET LETTER

It may be just a temporary lull, but for the nonce at least, the flurry of price changes seems to have subsided. Repercussions, however, like ripples caused on a lake by a tossed rock, continue to hold attention of chemical marketers.

For instance, the drastic cut in manufacturers' schedules on methanol, reported last week, may well be driving price-shaders out of the marketplace here and there across the country. The lower prices aren't stimulating business to any great extent, however.

Reasonably good amounts of synthetic methanol are moving to industrial outlets—particularly to now-canning antifreeze sellers—but the market-dimmer seems to be simply that there's enough methanol around to more than cover all demands.

After a comparatively quiet period following the recent rash of plasticizer price cuts (CW Market Letter, April 17), some trade talk has it that competition is again at the heated stage.

Specifically being mentioned are di-octyl and di-iso-octyl phthalate. Most major makers, however, are striving to hold firm to the recently reduced (to 32¢/lb., tanks) list prices.

Just about all domestic contract caustic soda customers will be paying more for their needs come July 1. Diamond Alkali last week joined the parade of producers who have posted new tag hikes of 15¢/cwt., effective on that date. Spot tonnage quotes, for the most part, are already in effect.

There's still no word whether or not export caustic prices will be nudged upward (by the increases on the domestic market), or pressured downward (because of the continued reluctance of overseas customers to buy very heavily at current quotations).

More likely outcome: there'll be no changes made—at least for a short while.

Formic acid prices, too, will probably remain pegged for the present. At any rate, most makers see little indication that the recent 2¢/lb. reduction in formaldehyde schedules will have any effect on formic.

Demand for the latter has been only fair, with most outlets (tex-

## MARKET LETTER

### **WEEKLY BUSINESS INDICATORS**

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	123.3	123.4	126.3
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.2	104.3	104.4
Bituminous Coal Production (daily average, 1,000 tons)	1,194.0	1,206.0	1,502.0
Steel Ingot Production (1,000 tons)	1,752.0 (est.)	1,746.0 (act.)	2,183.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	296.4	308.7	236.5

### **MONTHLY INDICATORS—Employment (Thousands)**

	Latest Month	Preceding Month	Year Ago
All Manufacturing	12,415.0	12,592.0	13,718.0
Nondurable Goods	5,227.0	5,289.0	5,525.0
Chemicals and Allied Products	519.0	533.2	515.7
Paper and Allied Products	433.4	433.8	440.7
Rubber Products	197.1	197.0	220.2
Petroleum and Coal Products	177.4	176.1	188.4

tiles, leather, etc.) dipping shallowly into ample supplies. That output has been cut back, though, and is pointed up by latest (March) government figures—this year, 1.2 million lbs.; March '53, 1.4 million.

There are broad indications that the long-awaited domestic rush for some insecticides, particularly DDT and BHC, may be just getting started. Producers report that formulators—inspired finally by late spring calls from consumers—are moving in for heavier purchases.

But repeated siphoning for overseas shipments of DDT, on General Services Administration orders (CW Market Letter, May 22), has tightened supplies considerably, indeed has raised the specter of local shortages later this summer.

In balance at the moment, is the situation on benzol. Output cutbacks, whittled inventories and better-than-earlier demand account for the strengthened market for the coal-tar material. Fact is, a few makers are declaring they can't handle any extra business at current production rates.

Recent step-up in steel, however, will eventually add to concomitant benzol availability. Prices, as might be expected, show none of the wobbling so prevalent just a few short months ago.

On the other hand, some contract carbon tet and perchlorethylene users will be paying slightly more for their requirements come July 1. Dow is posting revised schedules, upping prices on the former an average of  $\frac{1}{4}$ ¢/lb., and, in addition to changing some tags, also instituting new tank-truck deliveries for the "per."

There's little doubt that most other producers will follow Dow's lead in this instance. Reason: all are faced with the same higher manufacturing cost problems, although the current dry-cleaning season has sales rolling along at a good clip.

### **SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending June 14, 1954**

#### **DOWN**

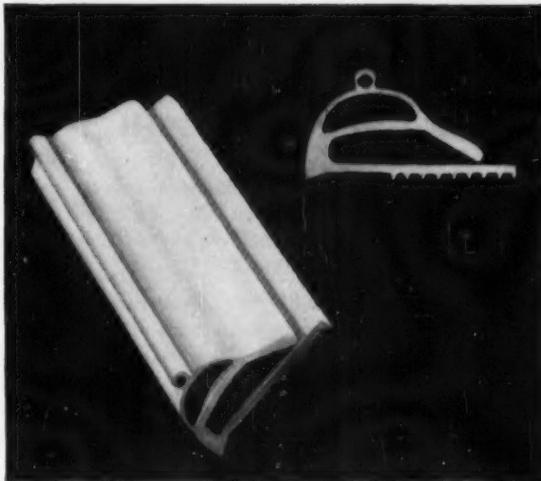
	Change	New Price	Change	New Price
Coconut oil, crude, tanks (N.Y.)	\$.0025	\$.1375	Inedible tallow, No. 1, tanks, divd.	\$.005
Linseed oil, raw, tankcar, f.o.b.			Wax, candelilla, ref., bgs.	.10
Minneapolis	.005	.145		.67

All prices per pound unless quantity is stated.

*Chemicals you live by*

For fast production  
of quality extrusions,  
try Diamond

# PVC-50



Section of refrigerator door gasket made of DIAMOND PVC-50.

If you want a polyvinyl chloride resin that has all the properties required to produce high quality extrusions with speed and economy, try DIAMOND PVC-50.

The excellent dry blending qualities of PVC-50 reduce mixing time and permit blending with a minimum of equipment and capital investment. The blended materials flow freely, have excellent heat stability and extrude freely as can be seen from the sample at the left.

The outstanding properties of DIAMOND PVC-50 result from constant quality control by DIAMOND technicians at every production stage . . . from raw materials to finished resin, plus the facilities of the world's newest, most modern PVC plant.

For technical information and assistance, call your nearest DIAMOND Sales Office, or write DIAMOND ALKALI Co., 300 Union Commerce Bldg., Cleveland 14, Ohio.

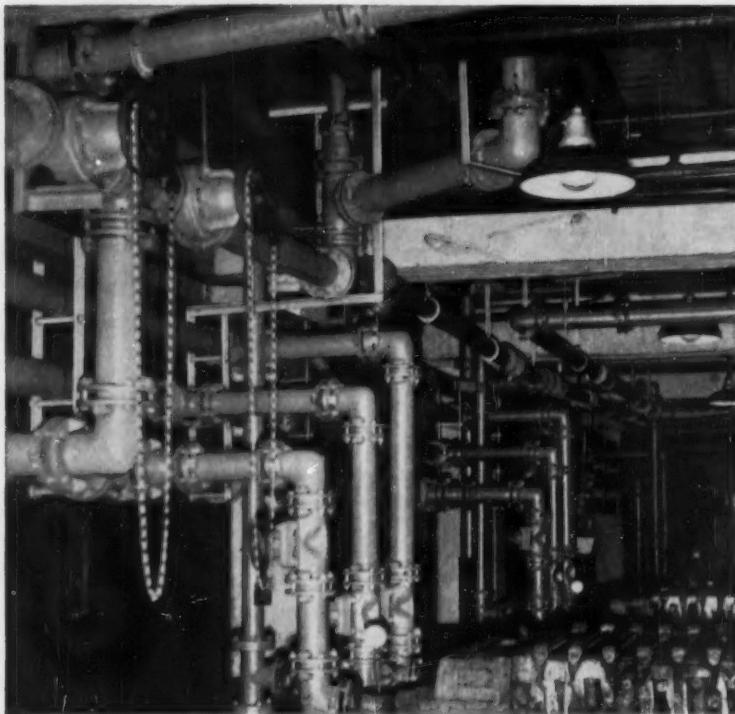
**DIAMOND ALKALI COMPANY CLEVELAND 14, OHIO**



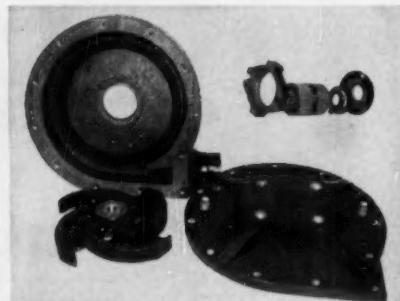
**WHERE HAVEG EQUIPMENT IS INSTALLED**

TRADE MARK REG. U. S. PAT. OFF.

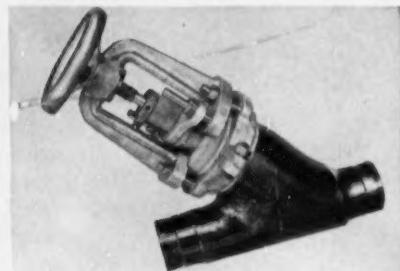
PIPE • DUCT • FITTINGS • VALVES • PUMPS



A typical large installation of Haveg pipe, valves and fittings showing simple method of support required. Haveg pipe is unaffected by thermal shock, seldom requires insulation.



These Haveg parts are used in pumps for hot (104°F.) 30% Hydrochloric acid. Typical record: 33 months without replacing a single part. Many users report even longer life.



Escape potential valve troubles by buying Haveg y-valves and diaphragm valves which are smooth-molded, exactingly machined, tested in the Haveg factory. Haveg works with you on special designs!

### Processing Corrosion has been Controlled!

Where liquids get hot and corrosive, it pays to consider all the facts about Haveg piping systems. Haveg has all the major ingredients for good chemical piping. Strength. Durability. Light weight. Outstanding resistance to corrosion and thermal shock.

It withstands rapid temperature changes and enables you to go into a high range of process temperatures with complete safety and a proven history of reliable performance. Haveg piping resists corrosion of practically all acids (except oxidizing acids) and lasts for years without repairs or maintenance.

Haveg piping is molded in diameters of  $\frac{1}{2}$ " up and comes in lengths to 10'. It can be cut and fitted on the job (a new Haveg tool makes this even simpler—ask your Haveg engineer for details). For handling corrosive gases or fumes,

Haveg duct is made in cylindrical or rectangular shape with lighter walls. Fume hoods, bifurcators, fan housings, fittings, all are made from Haveg and give complete containment and control of corrosives.

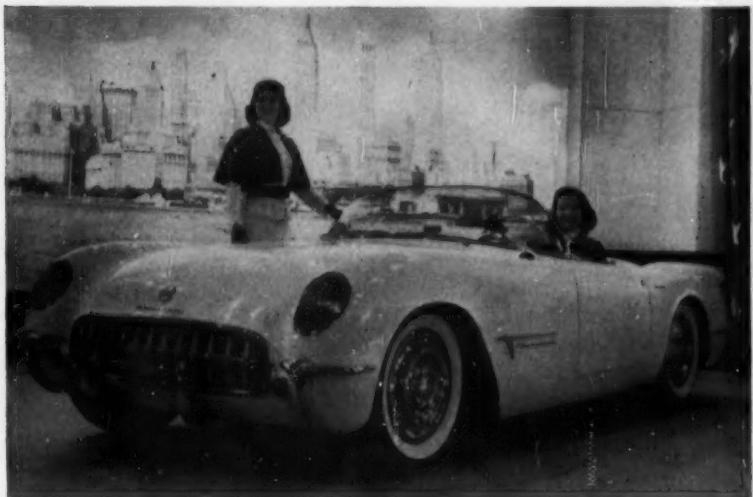
It's a long story telling all about Haveg, the moldable, thermosetting plastic material made of acid-digested asbestos and synthetic resins. Haveg is both a material and a service . . . it comes from America's first molders of corrosion-resistant plastic equipment. It can be as big as a 200' stack, as small as a miniature pump part. Call the experienced sales engineer listed. Write for the 64-page illustrated Bulletin F-6 which contains size and chemical resistance charts, design specifications. Remember, Haveg is a logical, proven answer to your design problems in handling hot, corrosive liquids; in fact, in all equipment that must control processing corrosion.

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## M A R K E T S . . .

**CW CAMERA PEEKS** into Molded Fiber Glass Body Co.'s ready-to-roll plant, which will turn out units via matched metal dies. From top down: Workmen laying out, cutting fiber glass mat. Mats are cut with machine similar to that used in clothing factory.



CHEVROLET'S CORVETTE: 10,000 lifts for chemical makers in a . . .

## Ride to Plastic Markets

Within the next two weeks, if all goes well, the fledgling U.S. plastic car body industry will take its first confident step toward mass-production output. For by then Molded Fiber Glass Body Co., Ashtabula (O.), will be turning out all of the fiber-glass-reinforced plastic parts for Chevrolet's Corvette sports car.

What gives the occasion a revolutionary aspect? The company will employ matched metal dies to press out the Corvette sections, rather than the experimental hand lay or the principally used (until now) vacuum (pressure) bag molding methods.

The latter process—used by Lunn Laminates, Huntington Station, Long Island (N.Y.), and Winner Mfg., West Trenton (N.J.)—is responsible for the comparatively few Corvettes (and Kaiser Darrins) now on U.S. roads and in dealers' hands.

Molded Fiber Glass Body, which received the original Chevrolet contract to produce 10,000 cars, had subcontracted with Lunn to build 300 Corvette units. The temporary deal was made to give the former company time to install the metal dies in its new \$450,000 plant at Ashtabula.

Putting the matched metal dies into production, though, has been a slow process; since many sets of dies are needed. But the problems are now licked, says Molded Fiber Glass

Body's president, Robert Morrison.

Die for the body front panel, second largest molded part\*, went into operation just last week, while the die for the underbody (the Corvette's largest part) is slated for production early next week.

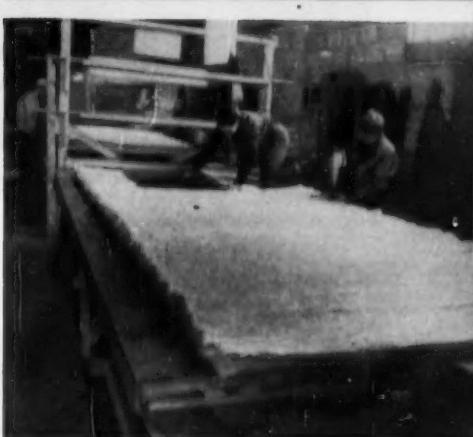
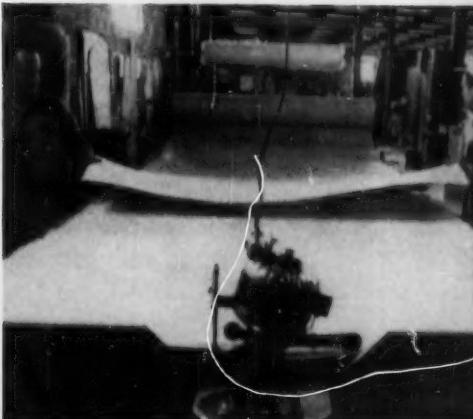
The sports car is now using 84 molded parts and 19 parts made of flat sheet; originally only 61 molded parts were used. All told, some 80 sets of dies have been installed in the new plant.

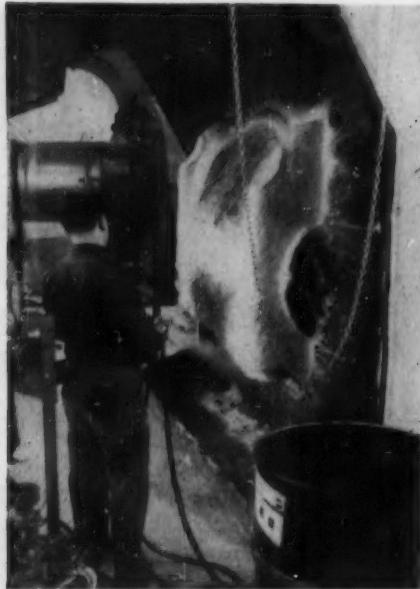
Tooling for metal press molding is about four times as expensive as the costs for bag molding, but the latter is pretty much a slow, hand operation. Rate of production with the newer metal dies is, of course, considerably greater—one estimate pegs performance at 20 times faster than bag molding.

This faster output of plastic parts, with its concomitantly greater take of a varied group of essential materials, is the interest-piquer for many chemical and allied product companies. Notable among these are makers of polyester resins, and suppliers of raw materials such as styrene, maleic anhydride, phthalic, glycols, glass fibers, calcium carbonate (filler), etc.

At the moment Molded Fiber Glass

\*Underbody section—120 in. long, 70 in. wide, 26 in. deep from highest point—is biggest ever compression-molded.





"ROVINGS" are sprayed—necessary for odd-shaped parts—on preformed screen. Binder holds it in shape until it's die-inserted.



HOOD molded differently. Veil mat, then layers of fiber glass mat are laid on die; resin is poured from premeasured contained.



HEAT lamps cure adhesive holding operations carried on in Molded

Body is consuming about 200,000 lbs./month of resin, which it buys from five different companies including Bakelite, Reichhold and Barrett (Plaskon). Some 17 resin formulations are employed in turning out the various parts.

These chemical and other material suppliers have been wearing the uniforms of nursemaids, helping to bring plastic car production along the rocky road to success. And no one is yet ready to sit back, complacent that

the materials now being used are ideal. The search goes on for stronger resins, for better bonding material between these resins and the fiber glass.

One of the worst problems Morrison has faced, however, is just about licked. In the beginning, the fiber glass pattern showed through on the surface after the part had been molded and cured. (Chevrolet was insistent that surface finish be as nearly like steel as possible.) About a year ago, Molded Fiber Glass Body

experimented with using shorter fibers—about  $\frac{1}{8}$ -in. compared with the 2-in. strands originally used—but these bulked up too much, proved unsatisfactory.

Fiber glass producers came up with the solution—a filmy fiber glass sheet called a surfacing veil. The veil is spread on the mold first and last, gives the finished part a smooth, surface without the objectionable show-through of fibers.

**Small, Promising:** It's a cinch plas-



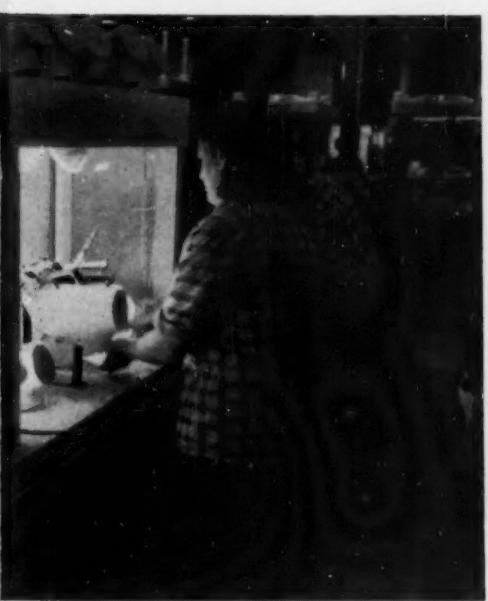
SMALLER-SIZE, "rovings"-covered preforms start journey through gas-fired curing oven before being put into die and molded.



FINISHING OPERATION: Excess fiber glass, rough edges are sanded.



SECOND panel) is lift-



# Nonionic Surfactants

## MONOGLYCERIDES

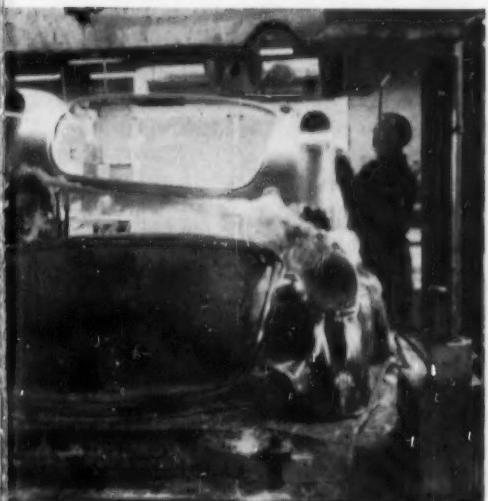
Ricinoleic esters and edible stearic, oleic and lauric esters. Used extensively by food, drug and cosmetic industries as emulsifiers, stabilizers and suspending and thickening agents.

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largest molded part of Corvette (body front ed from die. (Underbody part is biggest.)

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## M A R K E T S . . . . .

ate) and 1.5 lbs. of benzoyl peroxide (catalyst). Multiply these amounts by 10,000 and the reason why chemical makers are snuggling close to the new operations becomes obvious. Add, too, the fact that enthusiasm for plastic cars is mounting—and that's underscored by interest being shown by most automobile makers.

farm goods will figure in the program.

At any rate mere anticipation that the government would step up to the nonferrous metals counter, has in itself had a firming influence on the market in the past few weeks. Lead and zinc users have increased their purchases substantially, after a somewhat long period of shying away from forward buying to keep inventories at very low levels.

One manifestation of the policy reversal is evident in recent price alterations. Climaxing a near-two-year decline, both lead and zinc prices have only lately begun to trend upward.

The former, for instance, has risen from 12½¢/lb. in March to last week's reported 14¼¢, while zinc—which had skittered from a high 19½¢ to a low 9¾¢ by late February—is back up to a firm, current 11½¢/lb., delivered in New York.

In the past several months, domestic output has been cut back sharply, but despite the slashes, stocks at producers' levels have continued high. Zinc smelters, particularly, have seen some tough days. Earlier in February of this year, for example, National Zinc announced a production curtailment of 500 tons/month at its Bartlesville (Okla.) plant.

The action was followed closely by St. Joseph Lead's notice that it too—and for the second time since the previous November—was cutting back its Josephtown (Pa.) smelter by about 1,500 tons/month.

In the face of these and other cuts, however, slab zinc tonnage in producers' hands has remained at a whopping 200,000-ton level. That's more than double the amount standing by as of May a year ago.

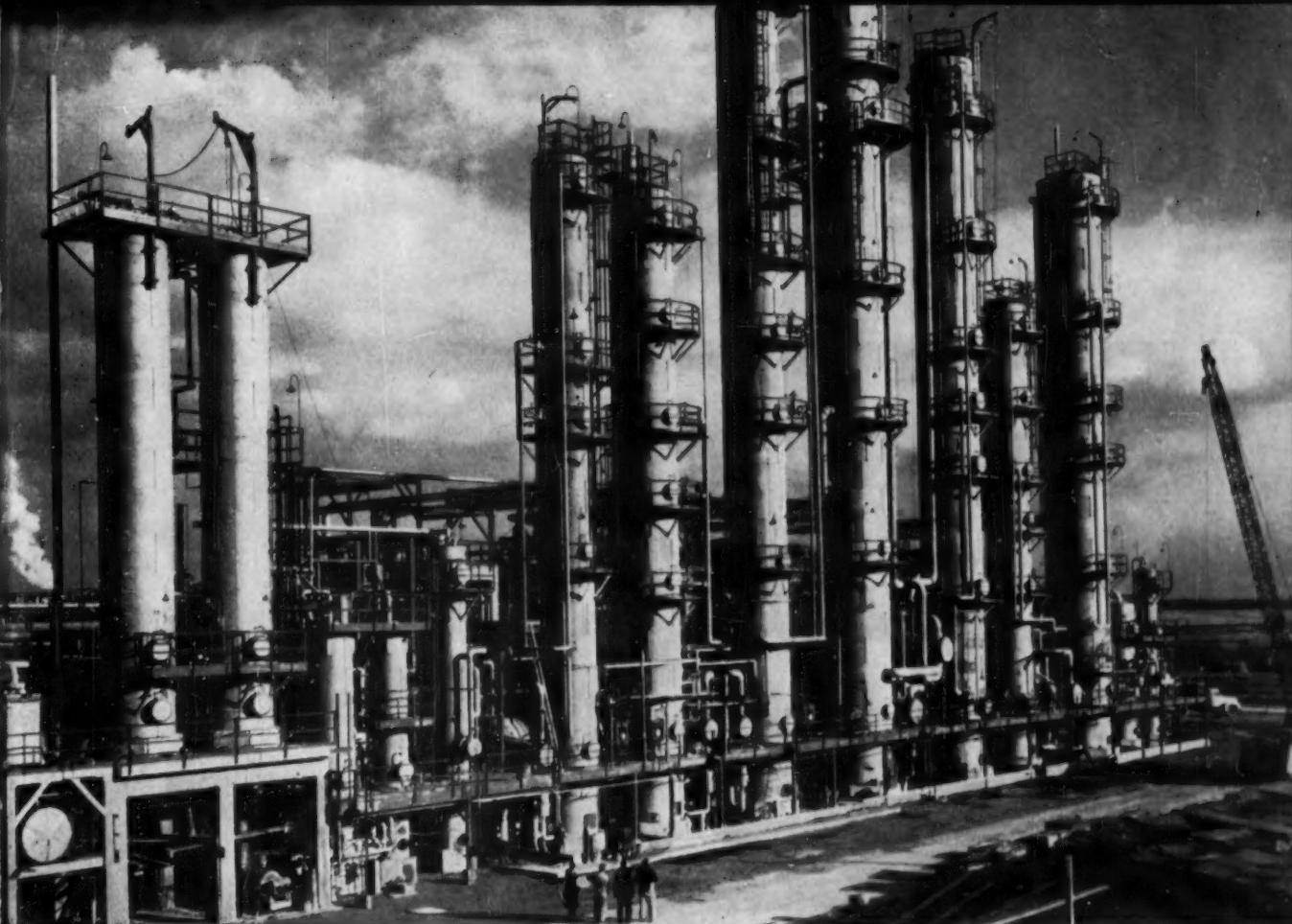
On the other hand, while backed-up lead stocks haven't been as bothersome as the mounting zinc inventories, they, too, have increased steadily. There's no way of accurately appraising scrap lead or secondary smelters' stocks, but indicative of the unhappy sellers' situation is the fact that about 100,000 tons of pig lead is currently piled up. Add too, another 100,000 tons of lead ore above ground being held by primary smelters.

Just how much of a bolsterer ODM's initial directive will be is still moot. Reason: although GSA is required to procure newly mined domestic minerals, for security reasons the quantities of lead and zinc to be purchased have not been disclosed.

The new purchasing policy, however, may mean a boost of from \$1.4 billion to \$2.8 billion in total stockpile objectives, according to a rough but informed estimate. Theoretically this could account for additional stockpile acquisitions of about \$500 million/year over the next few years.

In practice, though, there are some snags. Still unknown, for instance, is whether new appropriations or debt-limit considerations will allow much new buying, or how barter of surplus

These lead and zinc backloggs of supply at the moment are serving as effective nullifiers to any hankering producers may have to immediately resume full-scale production. A spot CW survey reveals that most lead and zinc marketers are restraining their optimism regarding ODM's initial directive until it's known about how much Uncle Sam's shopping basket is likely to hold.



# SUN OIL'S PETROCHEMICAL PLANT

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selected feed stocks are used. The result is month-in, month-out sameness—even with high volume throughput—plus new versatility and efficiency.

Other petrochemicals produced by Sun Oil Company include propylene trimer and tetramer, sulfonates, and a new type of high-molecular-weight naphthenic acid that is practically free of oil. For a technical bulletin describing any of these Sun petrochemicals, write Department CW-6.

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# DISTRIBUTION . . .



FORWARD LOOK: A new twist to an old idea.

## Straight to the Soil

A lot of fertilizer salesmen will have a lot to learn if an experiment originated by Farm Service Cooperative (Harlan, Iowa) pans out: a method of applying phosphoric acid directly to the soil. If it catches on, as has the more familiar direct application of ammonia, it could well upend the entire fertilizer distribution pattern.

The idea is made to order for a place like Iowa. Rich in potash, the soil there lacks only nitrogen and phosphorus. And since the rigs currently being tried supply both ammonia and phosphoric acid, the chemical industry may find itself bypassing the fertilizer mixer and dealing with the man who sells his services directly to the farmer.

And even though the work done so far has been on a small scale, there are indications that the method appeals to other areas. After watching the results carefully, distributors in other sections of Iowa and in Nebraska that sell and apply anhydrous ammonia have decided to try it out in their districts. And Monsanto, the happy supplier of the acid, has sold tank-car quantities to such far-away places as Texas and Colorado. In Denver, American Fertilizer and Chemical Co.'s Stu Bayles is pushing the project.

**Borrowed and Extended:** The direct application of ammonia to the soil is

an old story for the chemical industry. Extension of the same principle to phosphoric acid, however, when suggested by Farm Service Corp., met with only pessimism. But FSC turned to experiments, proved the method workable.

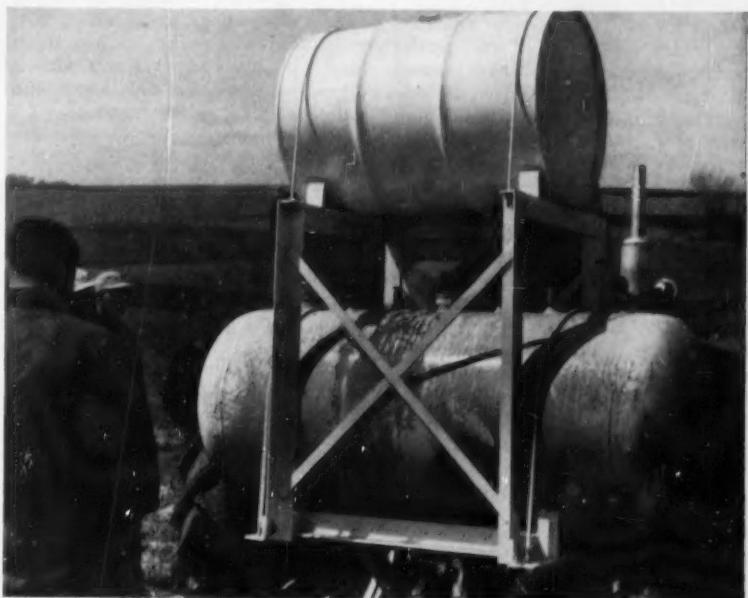
This is how it's done: A plastic-

lined tank containing the phosphoric acid is mounted atop the wheeled ammonia tank (see cut). Ammonia is fed to the soil alongside the furrow-cutting knife blades—about 6 in. below the surface. The phosphoric comes out through a tube near the top of the knife blade.

One difficulty encountered when applying ammonia directly is its volatility. The liquid must be introduced into a rapidly closing fissure so the gas, which forms rapidly, will be absorbed and not wasted. Phosphoric acid, on the other hand, doesn't pose quite so serious a problem. By being fed on top of the ammonia, moreover, it helps neutralize the latter, hence minimizes its escape.

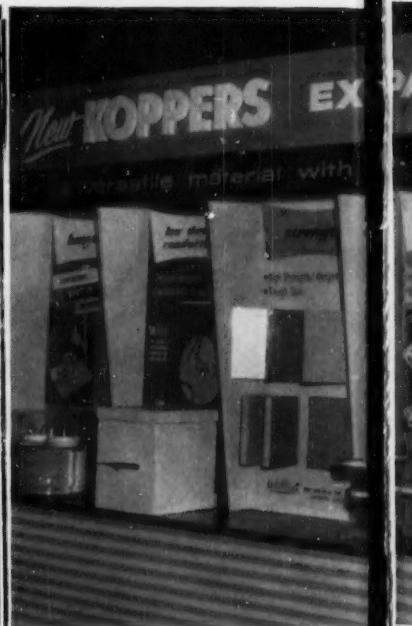
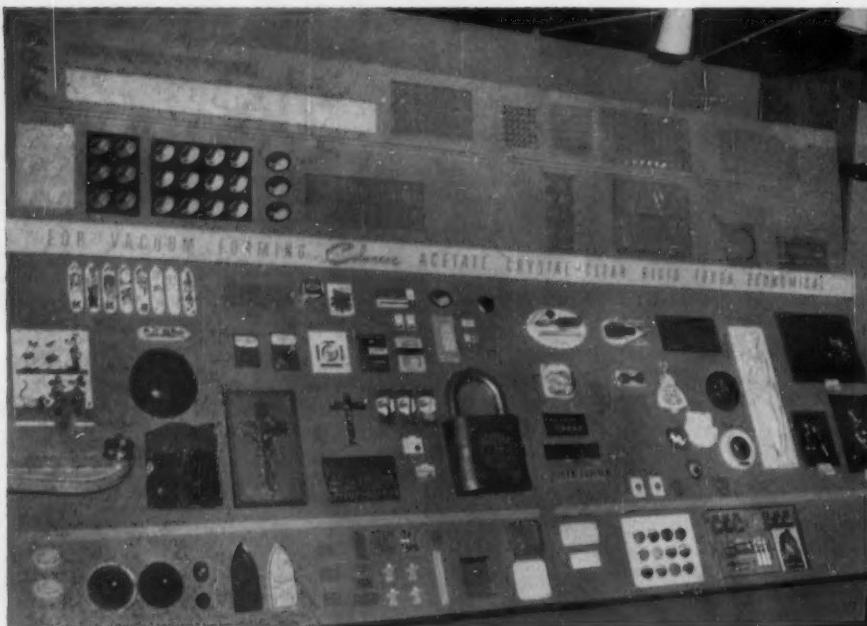
The size of the phosphoric market is more than sufficient to arouse interest on the part of makers of arc-furnace acid. In the test runs, between 30 and 60 lbs. were applied on each acre. Multiply that by 5¢/lb. (for carload lots) or 8¢/lb. (for drum lots), then by the number of acres of land to which the method might apply, and you end up with a staggering potential.

In at least one place, a producer that has wet-process acid as a by-product has reportedly been selling it for application through irrigation water. Arc-furnace acid makers could not, of course, compete with a setup like that. But it's a safe bet that if the method proves out, they'll be wooing the farmers elsewhere.



BACKWARD LOOK: Two fed as fast as one—with less loss.

DISTRIBUTION . . . . .



MANUFACTURERS' SALES PITCHES: Combinations of improved processes plus new . . . forms of materials calculated to lure

## Plastics "Biggest Show"

Last week, for four full days, an estimated 19,000 representatives of industry, business, retailing and government tramped around the 51,000 sq. ft. of floor space at the Cleveland Public Auditorium.

In addition, many visitors attended one or more of four days of meetings in the nearby Cleveland and Statler hotels. And what did all these persons see, hear, and talk about? Mostly one and the same topic: plastics—and more plastics.

The occasion for this mass assemblage with but a single subject: the Sixth National Plastics Exposition, first meeting of its kind since the Philadelphia show two years ago.

Onlookers had come to learn of the impressive advances the dynamic plastics industry had made over the past couple years. In one respect, the exposition was a time for taking inventory, by both industry and its customers. For since 1952, the industry had boosted output a rousing 30%; value of current output had now soared to a mighty \$1.5-billion annual rate.

But the exhibitors at the show—a record 172 of them, representing every facet of the industry—intended to present to their visitors more than a mere review of past achievements. Their prime purpose: to display, each in his own way, the many kinds of

assistance each could lend that would lead to ever-greater industrial interest and usage of their products.

Some of these myriad manufacturing, packaging and selling aids for the plastics-minded:

- Application exhibits, displaying and/or discussing, for example, how to mass produce car bodies, structural panels, plastic sandwiches, decorative laminates and sheets, and industrial plant windows.

- Newer materials, such as irradiated and cellular polyethylenes, high-temperature colorants, fire-resistant polyesters, vinyl foam, fire-retardant coatings, high-impact styrene, polystyrene-rubber alloy, expandable polystyrene beads, transparent polyester film, mold release agents, curing agents, and plastics laminating materials.

- New equipment, some of which were a plastic materials handling system, a radioisotope thickness gauge, improved temperature controllers, a new-type saw for cutting acrylic and structural plastics, feeders, dicers, scrap grinders, blenders, and a variety of vacuum formers and vacuum coaters.

- Services in profusion: custom molders and extruders, fabricators of polyvinyl chlorides and nylon, finishing and testing specialists, a complete contract service and, finally, exporters



HOW IT'S DONE: Vacuum forming, one of many demonstrations of processors' prowess.

who talked plastics in seven languages.

And for those whose appetites demanded more organized presentations of the subject, there were the Annual Plastics Conference meetings running concurrently with the exposition.

These were comprised of some two dozen experts who discussed developments in four major plastics-consuming fields: radio and television, automobiles, refrigeration and air conditioning, and rubber.

The discussions were aimed at two-fold targets:

- To tell plastics makers how their

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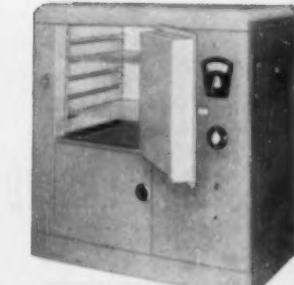
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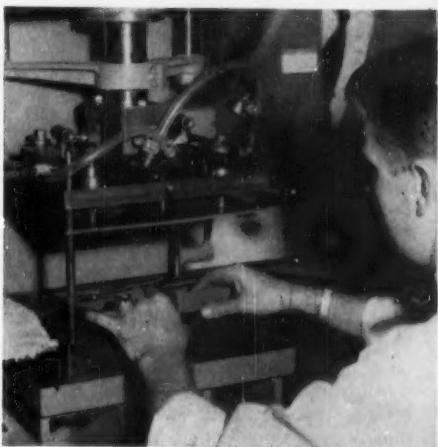
Model V-15—1-door:  
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Temp. 500°F. Larger sizes available



Model V-33—2 door:  
37" x 25" x 50" high 20 KW; Max. Temp. 600°F.

Write for Bulletin No. 107

prospective molders, expand an already swollen market.



PLASTICS FOR EVERYONE: Forming rigid vinyl sheet on a metal stamping press.

products were being used.

To suggest to fabricators ways of developing even bigger plastics markets in their fields.

That the "biggest ever" show application could be used in describing the Cleveland Exposition, there seemed little room for doubt. That it had also alerted plastic suppliers and industrial users and, thereby indirectly, the general public as well, also appeared to be undeniable.

But perhaps the deepest impression left by the show in the minds of the 19,000 visitors was: the plastics industry, while starting to mature, still had years of growth ahead.

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### Last week, CW asked chemical sales managers these 10 questions:

1. What's the sales outlook for the remainder of 1954?
2. What are you doing to increase your sales force?
3. How are you finding recruiting conditions?
4. Are your men's incomes higher or lower than last year?
5. What are you doing to keep contact with your men in regard to sales conferences and sales aids?
6. What is your experience concerning tendencies in technical service?
7. Are your men making more or fewer calls? Why?
8. Are you taking any action on expense account tightening?
9. How much price cutting are you encountering and how big a worry is it?
10. What is your top problem today?

### Sales Managers' Worries

With this year of the "hard sell" now half over, sales managers are busily grappling with many problems. Here's what they're thinking and doing about their troubles:

1. **Outlook.** Consolidated opinion of sales managers: sales in second half this year will be up slightly. Most sources report business is fair to brisk but definitely more competitive. Softest spots appear to be in solvents particularly at reseller level.

Typical predictions:

- From Texas—"situation is vastly different from a year ago . . . much more normal . . . no dust bowl to worry us."

- West Coast—"sales about same . . . but competition is keener."
- Midwest (heavy chemicals)—"outlook substantially good—better than the forecasts."

- Coal-tar chemicals—" . . . still slow, but second half looks good."

2. **Staff Size.** As might be expected under conditions of stepped-up competition, nobody is cutting his force. About half the replies anticipated few additions; the others had put on more men, expected to beef up another 5 to 20%.

To one manager, at least, the "top problem of the future . . . is manpower. Increased competition intensifies the need for the perennial 'salesman,' not an 'order taker'."

And although not all respondents were quite so emphatic, none even dreamed of operating with less help.

3. **Staff Quality.** Managers' experience in obtaining new salesmen differs greatly. In general, however, recruiting results tied in with the complexity of the product sold.

Some of the "easy-to-getters":

- From a heavy chemicals manager: "We've hired about 5% more salesmen and found them easier to get."

- A full-line distributor: "We are maintaining about the same staff . . . find men easier to hire now."

But wherever technical service and experience are at a premium, the problem of staffing is much more difficult.

Specific replies ranged like this:

- One of the larger companies: "We find good men hard to get. One of our major problems is filling and training our expanding force."

- Another large concern: "We



Dependable Source for Chemical Raw Materials



*Robert McInnes, Jr., Sales Manager, King Manufacturing Co.,  
makers of King-Of-All Kleeners, Flint, Michigan.*

## Wyandotte quality helps King-Of-All Kleener gain consumer acceptance

"We've been using Wyandotte Caustic Soda since 1933. We use it in our King-Of-All Sewer and Septic Tank, Drain Pipe, and Grease Trap Kleeners," states Robert McInnes, Jr., Sales Manager, King Manufacturing Co., Flint, Michigan.

"With our national distribution and growing volume, it is vitally important that we use uniform, high-quality, free-flowing Caustic in our products. Wyandotte provides this, and is always willing to assist us on any chemical problems which come up in our business.

"Wyandotte gives small consumers the same consideration as

the large ones. We know. Wyandotte gave us good service when we were buying Caustic a drum at a time. Now, we buy in carload lots, have added modern, automatic packaging machines, trebled our production and still get the same fine service."

Whenever you buy chemical materials, it will pay you to investigate Wyandotte Chemicals as your source of supply. Wyandotte, a basic producer with its own sources of raw materials, has demonstrated its ability to work with industries on chemical requirements for more than 64 years. Wyandotte can serve your needs by the drum or carload,

from plant or widespread distributor stocks . . . may we serve you? *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.*

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want seasoned men. That type is harder to get this year."

• From a smaller company: "It's still hard to get qualified technical salesmen."

**4. More Money?** Although starting salaries, particularly for the more technical sales jobs, are higher in some cases, practically no men on straight salary have been offered increases as special inducement. Normal merit raises are the order of the day.

For those whose efforts are rewarded, at least partly, on a commission basis, compensation is higher than a year ago. Principal reason for increase: more selective calls.

**5. Conferences.** Smaller and more frequent sales meetings is the present trend. Almost everyone emphasized that, regardless of the motive, the tendency today is toward more sales conferences on a regional or local basis. No one saw any value in big general sales meetings.

Some of the more definite actions:

- "We're devoting more time to sparking our salesmen, but not by conferences . . . take too much time."

- ". . . more intensified conferences . . . more sales helps."

- ". . . frequent small meetings . . . cost less . . . keep group better informed . . . analyze problems of the particular region . . . no general 'pep' meetings."

**6. Technical Service.** A strong strain in present-day chemical sales is the increasing amounts of technical service. Almost all managers admit that customers are demanding (and receiving) more help than ever before. And all signs point to a continuation of the practice.

Many of the replies on the sales value of technical customer aid revealed fundamental factors in the industry.

A few of the more enlightening:

- "Customers are growing more complacent about helping themselves . . . some suppliers are too technical service minded . . . often amount of service determines the sale."

- "Our customers show more technical knowledge than formerly—that gives our men more questions to answer."

- "Increased emphasis—necessary because of new markets . . . more application work for new products . . . out of proportion to sales but required for the long pull."

**7. More Calls? or Fewer?** Almost all respondents to CW's questions evinced considerable interest in the number of calls their salesmen were

making. Paradoxically, though, the answers fell into two distinct schools of thought: (a) those who believe in increasing the number of calls, and (b) those who feel that fewer, more selective calls is the proper approach to today's more competitive market.

Those who favored more calls reasoned this way:

- "Yes, more calls . . . only good business . . . competitors forcing us to hustle more."

- "... encouraging more calls, but want them productive . . . not just a notation on a call sheet."

- "... making more calls, due to demands for service and trying for more business."

- "We're knocking on every small door now, not just the big doors."

- "... more calls . . . logical in a buyer's market."

But arguments for fewer calls flowed just as freely:

- "We are trying to make all calls more effective . . . cutting out all small ones . . . concentrating on those where we can at least break even."

- "Number of calls is decreasing. Each call takes more time . . . more to discuss marketwise . . . because of active condition of the market."

- "... fewer, more effective calls. Our salesmen face tougher selling . . . have to give more detailed information."

**8. Expense Accounts?** Replies concerning this point varied as widely as the individual natures and sizes of the companies. There was no readily traceable relationship, however.

Picked at random, they ran this gamut:

- "We've tightened up on all expense accounts, selling and administrative, set ceiling hotel rates, etc. . . . effected a 19% economy. But if things perk up we may have to relinquish partly."

- "Yes, there's been a tightening of accounts. All costs have been scrutinized recently."

- "Expense accounts are not under fire. We feel a little relaxing on this score may even help business, if not allowed to grow wild."

- "... have tried to be conservative on expense accounts. However, in a buyer's market, a little more entertaining may be a necessary counteractant."

**9. Price Cutting?** Although an occasional reply indicated some concern over price cutting, most managers did not regard the problem as serious.

Those who were concerned discussed the situation as being either:

- Principally at the jobber and distributor level and of temporary nature.

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## CHEMICAL WEEK • ADVERTISER'S INDEX

JUNE 19, 1954

ACME STEEL CO.	45	MALLINCKRODT CHEMICAL WORKS	55-56
Agency—Fuller & Smith & Ross, Inc.		Agency—Fried Smith & Co.	
AIR REDUCTION CHEMICAL CO.	81	MAAS CHEMICAL CO., A. R.	46
Agency—Fuller & Smith & Ross, Inc.		Agency—Heints & Co., Inc.	
ALUMINUM IMPORT CORP.	59	MICHAELSON MFG. CO.	107
Agency—Walter Thompson Co.		MIDLAND TAR DISTILLERS, INC.	86
AMEROCAUT CORP.	37	Agency—Givaudan Adv., Inc.	
Agency—Willard G. Gregory Co.		NATIONAL ENGINEERING CO.	8
AMERICAN BRITISH CHEMICAL SUPPLIES, INC.	44	Agency—Russell T. Gray, Inc.	
Agency—Richard Lewis Adv.		NATIONAL STEEL CONTAINER CORP.	72
AMERICAN CYANAMID CO.	38, 39	NEVILLE CHEMICAL CO., THE	67
Agency—The McCarty Co.		NEVILLE CHEMICAL CO., THE	67
AMERICAN METRIC MEASUREMENTS, INC.	28	OHIO-APEX DIV. OF FOOD MACHINERY & CHEMICAL CORP.	860
Agency—McCormick-Hardy, Van Denburgh, Inc.		Agency—Advertising, Inc.	
ASHCRAFT-WILKINSON CO.	74	OWENS-ILLINOIS GLASS CO.	85
Agency—Lidder, Neal & Battle Adv.		Agency—J. Walter Thompson Co.	
ATLANTIC REFINING CO.	83	PENNSYLVANIA REFINING CO.	2103
Agency—N. W. Ayer & Son, Inc.		Agency—Walker, Dunlap, Ind. Adv.	
BAKER PERKINS, INC.	83	PFIZER & CO., CHARLES	47
Agency—Tanner, Tanner & Willow, Inc.		Agency—MacManus, John & Adams, Inc.	
BARNETT DIV., ALLIED CHEMICAL & DYE CORP.	73	PLAX CORP.	77
Agency—McCann-Erickson, Inc.		Agency—The Charles Brunelle Co.	
BECKMAN INSTRUMENTS, INC.	36	REFINED PRODUCTS CORP.	2
Agency—Darwin H. Clark Co.		Agency—Janet Civilian Adv.	
BERKSHIRE CHEMICALS, INC.	86	REPUBLIC STEEL CORP.	34
Agency—The McCarty Co.		Agency—Meldrum & Fossman Inc.	
BIOS LABORATORIES INC.	7107	ROHM & HAAS CO.	61
Agency—Firestone Adv.		Agency—Arndt-Preston-Chapin-Lamb & Keen, Inc.	
BLOCKSON CHEMICAL CO.	78	SHARPLES CHEMICALS, INC.	43
Agency—William Balsam Adv.		Agency—Sommer-Davidson, Inc.	
BROWN CO.	58	SOLVAY PROCESS DIV., ALLIED CHEMICAL & DYE CORP.	Second Cover
Agency—J. M. Mathes, Inc.		Agency—Atherton & Currier, Inc.	
CARBIDE & CARBON CHEMICALS CO., A DIV. OF UNION CARBIDE & CARBON CORP.	83	STAUFFER CHEMICAL CO.	30
Agency—J. M. Mathes, Inc.		Agency—J. Hayden Twiss Co.	
CELANESE CORP. OF AMERICA	7	STEPHAN CHEMICAL CO.	41
Agency—Ellington & Co., Inc.		Agency—John C. Nester Inc.	
CHICAGO BRIDGE & IRON CO.	32	SUNDHEIMER CO., HENRY	104
Agency—Gray, Inc.		Agency—Givaudan Adv., Inc.	
CHICAGO & EASTERN ILLINOIS RAILROAD	87	SUN OIL CO.	99
Agency—Fuller & Smith & Ross, Inc.		Agency—Gray & Rogers Adv.	
COLTON CHEMICAL CO.	62	TENNESSEE PRODUCTS & CHEMICAL CORP.	71
Agency—The W. N. Gates Co., Inc.		Agency—Th. Griswold-Eshleman Co.	
COLUMBIA-SOUTHERN CHEMICAL CORP.	23	UNION BAG & PAPER CORP.	Third Cover
Agency—Ketchum, Marlowe & Grove, Inc.		Agency—Smith, Hagel & Snyder Inc.	
COMMERCIAL SOLVENTS CORP.	29	UNION CARBIDE & CARBON CORP.	33
Agency—Fuller & Smith & Ross, Inc.		CARBIDE & CARBON CHEMICALS CO.	33
CONTINENTAL OIL CO.	8	U. S. POTASH CO., INC.	276
Agency—Benton & Bowles, Inc.		VIRGINIA ELECTRIC & POWER CO.	52
COTTER & CO.	788	Agency—Advertising Inc.	
CORN PRODUCTS REFINING CO.	68	WYANDOTTE CHEMICALS CORP.	105
Agency—J. Hayden Twiss Adv.		Agency—Brooke, Smith, French & Dorrance, Inc.	
DEGEN & CO., INC., GEORGE	1104	WYATT METAL & BOILER WORKS	80
Agency—Charles E. Kane Adv.		Agency—Wallace Davis & Co.	
DEMPTER BROTHERS, INC.	79	tracers SECTION (Classified Advertising) H. E. Hiltz, Mgr.	
DETATCH OWN CO.	1165	CHEMICALS: Offered/Wanted	106
Agency—McCann-Erickson, Inc.		EMPLOYMENT	106
DIAMOND ALKALI CO.	99	EQUIPMENT: Used/Surplus New For Sale	106
Agency—Fuller & Smith & Ross, Inc.		Wanted	106
DODGE & OLcott, INC.	24	MANAGEMENT SERVICES	106
DOW CHEMICAL CO., THE	25	SPECIAL SERVICES	106
Agency—MacManus, John & Adams, Inc.			
DUPONT & NEMOURS & CO., INC., E. I. ORGANIC CHEMICALS DEPT.	48, 49		
DURIRON CO., THE	64-65		
Agency—Benton, Durstine & Osborn, Inc.			
DUVAL SULPHUR & POTASH CO.	74		
Agency—Lidder, Neal & Battle Adv.			
EDRICKMAN KODAK CO.	57		
Agency—Clegg, Burritt & Co.			
EMERY INDUSTRIES, INC.	10		
Agency—Ruthrauff & Ryan, Inc.			
EMPIRE TRUST CO.	776		
ENJAY CO., INC.	59		
Agency—McCann-Erickson, Inc.			
FIRESTONE PLASTICS CO.	4, 5	ADVERTISING STAFF	
Agency—McCann-Erickson, Inc.			
FISCHBEIN CO., DAVE	760	ADVERTISING SALES MGR.	B. E. Sawyer
Agency—Fischbein Adv., Agency		ASST. ADV. SALES MGR.	R. S. Muller
GENERAL AMERICAN TRANSPORTATION CORP., TANK CAR DIV.	14	BUSINESS MGR.	A. J. Mangold
Agency—Weiss & Geller, Inc.		PROMOTION & RESEARCH MGR.	F. E. Lesner
GENERAL CHEMICAL DIV. OF, ALLIED CHEMICAL & DYE CORP.	Back Cover	MARKET SERVICE MGR.	A. Losick
Agency—Atherton & Currier, Inc.		Atlanta 3	William D. Lanier, 1321 Rhodes-Haverty Bldg., Walnut 5778-2388
GENERAL ELECTRIC CO.	19	Chicago 11	Alfred D. Becker, Jr., Steven J. Shaw, 520 N. Michigan Ave., Mohawk 4-5800
Agency—G. M. Basford Co.		Cleveland 15	Vaughan K. Dissette, 1510 Hanna Bldg., Superior 7000
GENERAL ELECTRIC CO.	20	Dallas 1	James Cash, First National Bank Bldg., Prospect 7-5064
Agency—Benton & Bowles, Inc.		Los Angeles 17	Joe H. Allen, 1111 Wilshire Blvd., Madison 6-4322
GENERAL PLASTICS CORP.	51	New York 36	Knox Armstrong H. L. Brown, L. Charles Todaro, 820 West 42 St., L'Onsgate 4-3000
Agency—Harris & McDonald, Inc.		Philadelphia 3	William B. Hannum, Jr., Charles F. Onasch, Architects Bldg., 17th & Sansom Sts., Rittenhouse 6-0670
GLYCERINE PRODUCERS ASSOC.	70	San Francisco 4	Ralph E. Dorland, 58 Post St., Douglas 2-4600
Agency—G. M. Basford Co.		Boston 16	350 Park Square Building Hubbard 2-7160
GLYCO PRODUCTS CO.	97	Detroit 26	856 Penobscot Bldg., Woodward 2-1793
Agency—Sterling Adv., Agency		Pittsburgh 22	738 Oliver Bldg., Atlantic 1-4707
HALL CO., THO. G. P.	98	St. Louis 8	3615 Olive St., Continental Bldg., Lucas 4867
Agency—Clegg, Burritt & Co.			
HARDESTY CHEMICAL DIV., INC.	8		
Agency—Terrill, Belknap, & Marsh Assoc.			
HARSHAW CHEMICAL CO., THE	1		
Agency—Clegg, Burritt & Co.			
HAVEO CORP.	94		
Agency—Clegg, Burritt & Co.			
HEMIGULE POWDER CO.	106		
Agency—Fuller & Smith & Ross, Inc.			
HOOKEF ELECTRO-CHEMICAL CO.	90		
Agency—Charles L. Rumill & Co., Inc.			
INNIS, SPEIDEN CO.	876		
Agency—Sterling Adv., Agency			
JOHNS-MANVILLE CORP.	18		
Agency—Walter Thompson Co.			
KAFRIES CHEMICALS, INC.	44		
Agency—Richard Lewis Adv.			
KOPPERS CO.	27		
Agency—Benton, Durstine & Osborn, Inc.			
McLAUGHLIN, GORMLEY KING CO.	2103		
Agency—The Alfred Clegg Co.			

## DISTRIBUTION . . .

• Strictly a regional, rather than national, phenomenon.

10. Top Problems. As might be expected, there was no unanimity among sales managers as to their biggest headache. Many of the causes named as giving reason for worry stemmed from local conditions or individual company situations.

Example of these:

- Meeting shorter delivery demands.
- Establishing a new product in a farm market.
- Operating under reduced profit margins.

Directly or indirectly, individual comments reflected this main problem: the struggle to maintain the sales pace in the face of increasing competition.

One manager's facet of the problem: "to help the salesmen make most effective use of their time."

Another's: "getting new men trained to buck veteran competitors effectively."

Poser of a third: "maintaining an adequate sales force."

Probably the most head-on reply was that from a Western manager. His words, with typical Western forthrightness: "Top problem is maintaining volume of sales. Our business is predicated on keeping plants at peak volume of production."

**Plastics Demonstrator:** An "Extrusion Engineering Display," containing some 250 plastic products and illustrating the applications of plastics, is obtainable from Anchor Plastics Co., Long Island City, N.Y.

**Expense Saver:** Smaller shipping cartons are expected to save distributors for Aluminum Industries, Inc., up to 15% on paint distribution costs. Designed to accommodate low inventory-high turnover merchandising characteristic of small dealers, the package contains half the amount formerly shipped.

**Sales News:** Lunn Laminates, Inc. has opened sales offices in New York City.

Abbott Laboratories has opened new sales offices and a warehouse in Memphis, Tenn. Total space occupies approximately 24,000 sq. ft.

"New Techniques for the Packaging Engineer," three papers dealing with specifications, quality control and incentive system difficulties. Packaging Institute, New York City.

American Car and Foundry Co. has named its subsidiary, Shippers Car Line Corp., agents for its tank cars and parts.



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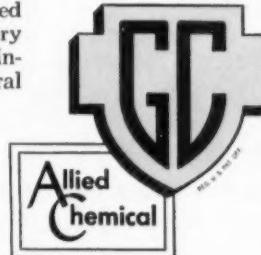
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